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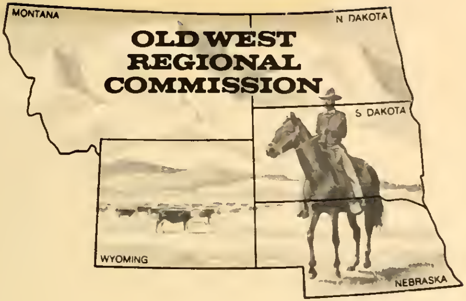

ENERGY RESEARCH INFORMATION SYSTEM

Projects Report

A Program of:

The Old West Regional Commission
Billings, Montana

Vol. 5, No. 2
December 1980

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ENERGY RESEARCH INFORMATION SYSTEM

PROJECTS REPORT

VOLUME 5, NUMBER 2

OLD WEST REGIONAL COMMISSION

BILLINGS, MONTANA

December 1980

COMPILED BY: JUDITH JOHNSON

DATA INPUT: BEVERLY PIETZ

OLD WEST REGIONAL COMMISSION
HEDDEN-EMPIRE BUILDING, SUITE 228
BILLINGS, MONTANA 59101

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930 East Lyndale Avenue
Helena, Montana 59601

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INTRODUCTION

The Old West Regional Commission is a Federal-State partnership designed to address regional economic problems and stimulate orderly economic growth in the states of Montana, Nebraska, North Dakota, South Dakota and Wyoming. Established in 1972 under the Public Works and Economic Development Act of 1965, it is one of eight such commissions in the United States.

The Energy Research Information System (ERIS) is a service administered by the Old West Regional Commission in response to the need for current information on research activities in the region's rapidly growing and changing field of energy. The purpose of ERIS is to compile and make available to the users in the Region an up-to-date inventory of ongoing and recently completed energy-related research projects.

The term "energy-related" covers a broad spectrum of activities and encompasses a large volume of research. Nonetheless, ERIS attempts to report energy-related research projects in as comprehensive a manner as possible. The subject areas covered are: reclamation, energy conversion, and land use research, socioeconomic impact and renewable energy resources studies, as well as programs related to energy development which do not necessarily involve research.

By facilitating communication among researchers and allowing public and private sector decision-makers access to Regional energy research, ERIS aims to improve information exchanges among energy research users. The system can be used as an aid in conducting research, avoiding duplication of effort, and pinpointing areas of additional research need.

The geographical focus of ERIS is the Old West Region - Montana, Nebraska, North Dakota, South Dakota and Wyoming. However, peripheral states or nationwide efforts are covered as they are related to regional work.

The compilation of energy research projects in the ERIS reports has been accomplished by combining ERIS's own information-gathering efforts with those of other clearinghouses--most notably, Oak Ridge National Laboratory, the Smithsonian Science Information Exchange, the Montana Energy Office, the North Dakota Regional Environmental Assessment Program, the University of Wyoming, Rocky Mountain Institute on Energy and Environment and other energy agencies in the Old West Region.

Use of the Energy Research Information System

ERIS Projects Reports

ERIS information is stored in a computerized data base. As the data base grows, periodic reports are printed which list the latest contents of the data base. The first such report was issued in November, 1975.

Access to ERIS is available through subject oriented sections and through the indexes located at the end of the listings. These indexes are: Location, Personal Name, Organization, and Subject Keyword. Instructions for the use of the indexes precede each section.

Please note that ERIS provides a listing but not the actual document referred to in the publication section of each abstract. Document delivery is best accomplished by contacting the local library system or by contacting the investigator or sponsor of any particular project.

Computer Search Service

The holdings of ERIS are computerized, allowing for flexibility in conducting special searches of the data base. The computer search service is offered as a complement to the ERIS Projects Reports. If your inquiry concerning energy research cannot be answered by manual use of the reports, contact a member of the ERIS staff, and request that a special search be conducted.

ERIS is part of the Research in Progress File (RIP) and the Energy R & D Project File (ERD) of the U. S. Department of Energy's RECON Information Retrieval System. Designated RECON users may also access ERIS through their own terminals.

* * * * * * * * * * * * * * * * *

Please direct your inquiries to:

ERIS
Old West Regional Commission
Suite 228 - Hedden-Empire Building
Billings, Montana 59101
406/657-6665 (commercial) or 585-6665 (FTS)

How ERIS is Organized

PROJECTS REPORTS (formerly called Quarterly Reports) contain descriptions of energy research in the Old West Region.

Each REPORT is indexed according to Location, Name, Organization, and Subject.

CUMULATIVE INDEXES are provided once a year to incorporate previous indexes of the year's PROJECTS REPORTS under one cover.

Project descriptions are not included with the Cumulative Index.

CUMULATIVE INDEXES and the year's PROJECTS REPORTS comprise a set of information.

VOLUME ONE

Vol. 1, No. 1 (Nov. 1975)
Project Nos. 00000001 to 00000300
Indexes to contents

Vol. 1, No. 2 (Feb. 1976)
Project Nos. 00000301 to 00000393
Indexes to contents

Vol. 1, No. 3 (May 1976)
Project Nos. 00000394 to 00000539
Indexes to contents

Vol. 1, No. 4 (Aug. 1976)
CUMULATIVE INDEXES to contents of
year's accumulation

VOLUME TWO

Vol. 2, No. 1 (Jan. 1977)
Project Nos. 00000540 to 00000716
Indexes to contents

Vol. 2, No. 2 (April 1977)
Project Nos. 00000717 to 00000891
Indexes to contents

Vol. 2, No. 3 (Nov. 1977)
Project Nos. 00000892 to 00001080
Indexes to contents

Vol. 2, No. 4 (Dec. 1977)
CUMULATIVE INDEXES to contents of
year's accumulation

Vol. 2, No. 4 (Dec. 1977)
ADDENDUM TO CUMULATIVE INDEXES
Updated location information for
Volumes 1 and 2

VOLUME THREE

Vol. 3, No. 1 (Aug. 1978)
Project Nos. 00001081 to 00001224
Indexes to contents

Vol. 3, No. 2 (Dec. 1978)
Project Nos. 00001225 to 00001362
Indexes to contents

Vol. 3, No. 3 (Jan. 1979)
CUMULATIVE INDEXES to contents of
year's accumulation

VOLUME FOUR

Vol. 4, No. 1 (June 1979)
Project Nos. 00001366 to 00001464
Indexes to contents

VOLUME FIVE

Vol. 5, No. 1 (July 1980)
Project Nos. 00001465 to 00001574
Indexes to contents

Vol. 5, No. 2 (Dec. 1980)
Project Nos. 00001575 to 00001672
Indexes to contents

ERIS Projects Reports are available from the ERIS staff or from National Technical Information Service (NTIS), U. S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161.

	NTIS	Price Codes	
	Accession No.	Paper Copy	Microfiche
Vol. 1 - Entire Set, 570 pages	PB276 850-Set	E12	---
Vol. 1, No. 1 (Nov. 1975)	PB276 851/AS	A11	A01
Vol. 1, No. 2 (Feb. 1976)	PB276 852/AS	A07	A01
Vol. 1, No. 3 (May 1976)	PB276 853/AS	A06	A01
Vol. 1, No. 4 (Aug. 1976)	PB276 854/AS	A05	A01
Vol. 2 - Entire Set, 542 pages	PB276 929-Set	E12	---
Vol. 2, No. 1 (Jan. 1977)	PB276 930/AS	A08	A01
Vol. 2, No. 2 (April 1977)	PB276 931/AS	A07	A01
Vol. 2, No. 3 (Nov. 1977)	PB276 932/AS	A08	A01
Vol. 2, No. 4 (Dec. 1977)	PB276 933/AS	A06	A01
Vol. 3, No. 1 (Aug. 1978)	PB294 342/AS	A05	A01
Vol. 3, No. 2 (Dec. 1978)	PB294 951/AS	A06	A01
Vol. 3, No. 3 (Jan. 1979)	PB294 952/AS	A05	A01
Vol. 4, No. 1 (June 1979)	PB300 338/AS	A05	A01

REPORTING FORM
ENERGY RESEARCH INFORMATION SYSTEM
Old West Regional Commission

INSTRUCTIONS: Please complete the relevant categories of the Reporting Form for each energy-related project currently being conducted or recently completed by your organization in the States of the Old West Region. If an umbrella project covers several separate studies, fill out a form for each one, as well as for the umbrella project. If you want any of the information you provide to be omitted from ERIS publications, make a note of this in Category 17, "Special Instructions for Proprietary Information."

In order to assist us in assigning keywords for computer access to your research information, we ask that you circle the most descriptive words and phrases of the Title and Abstract. If necessary, add additional terms of your own choosing.

If you are amending previously submitted information, please note this on the Reporting Form.

PLEASE RETURN COMPLETED REPORTING FORM(s) TO: ERIS, OLD WEST REGIONAL COMMISSION, 228 HEDDEN-EMPIRE BLDG., BILLINGS, MT 59101. PHONE: (406) 657-6665 (Commercial) or 585-6665 (FTS).

1. Date prepared ____________________ Respondent ____________________

   Check one: ________ Original Information ________ Amendment to ERIS Project No. ________

2. **PROJECT/PROGRAM TITLE** (circle keywords) ____________________

   ____

   ____

3. **PROJECT NUMBER** (descriptive no. used by your organization) ____________________

4. **PRINCIPAL INVESTIGATOR** (Include organization name and address)

   INVESTIGATOR ____________________ PHONE NO. ____________

   ORGANIZATION ____________________

   ADDRESS ____________________

   ____

   OTHER INVESTIGATORS:

   ____

   ____

5. **RESEARCH INSTITUTION** (institution/organization where or through which research is performed if different than 4 above)

   ORGANIZATION ____________________ PHONE NO. ____________

   ADDRESS ____________________

   ____

6. **COOPERATOR(S)** (organization(s) which provides time and/or resources toward the project but does not conduct, supervise, or fund the research)

ORGANIZATION ______________________________

PROJECT MONITOR ______________________ PHONE NO.__________

ADDRESS ______________________________

____

7. **PRIMARY SPONSOR** (organization which provides funds)

ORGANIZATION ______________________________

PROJECT MONITOR ______________________ PHONE NO.__________

ADDRESS ______________________________

____

8. **OTHER SPONSORS** (provide names of organizations which provide secondary funds)

____

____

____

9-10. **FUNDING AMOUNTS**

Type of accounting period:_________Calendar year_________Fiscal Year

Enter the **TOTALS** from each sponsor in the appropriate blanks. If the breakdown is known, enter the yearly amounts in the appropriate blanks.

Organizations from 7 and 8 above	197_____	198_____	198_____	Total
(Primary) ____________	$ ______	$ ______	$ ______	$ ______
(Other) ____________	$ ______	$ ______	$ ______	$ ______
____________	$ ______	$ ______	$ ______	$ ______
____________	$ ______	$ ______	$ ______	$ ______
Total Funding				$ ______

11. **TIME FRAME:** Starting Date____________________Ending Date____________________
mo. day yr. mo. day yr.

12. **ACTUAL COMPLETION DATE** (leave blank if not completed) ____________________
mo. day yr.

13. **LOCATION:** States and Counties; other location information — Region, River Basin, Cities, Township/Range/Section, etc.

STATES AND COUNTIES ____

OTHER LOCATION INFORMATION ____________________________________

14. **ABSTRACT:** Problem, Objectives, and Approach (in free form, 100-200 words)
PLEASE CIRCLE KEYWORDS AND PHRASES. Add other descriptors if necessary.

15. **REPORTS AND PUBLICATIONS** (title, authors, report number, date, issuing agency)

16. **AVAILABILITY OF REPORTS AND PUBLICATIONS** (indicate organization and mailing address where reports can be obtained; also indicate cost and order number if appropriate)

17. **SPECIAL INSTRUCTIONS FOR PROPRIETARY INFORMATION** (enter category number and information which you desire to be omitted from published material)

18. **A. TYPE OF STUDY OR PROGRAM**
(check all that apply)

1) ☐ Basic research

2) ☐ Applied research

3) ☐ Demonstration project or program not involving research (e.g., a community technical assistance program)

4) ☐ Environmental Impact Statement

5) ☐ Other________________________

B. TYPE OF DATA COLLECTED
(check all that apply)

1) ☐ Primary data sources
   a. ☐ Field study
   b. ☐ Lab. study
   c. ☐ Both of the above

2) ☐ Secondary data sources

3) ☐ Both 1 and 2 above

C. **PROJECT AFFILIATION** (check one of the following)

1) ☐ The study described on this Reporting Form is an umbrella project or program. It encompasses two (2) or more separate studies which are subcontracted and/or of differing subject content. Please provide Reporting Forms for the separate projects or incorporate them onto this Reporting Form.

2) ☐ The study described on this Reporting Form is a part of an umbrella project or program. Please provide umbrella project name and overall coordinating organization below.

____

____

3) ☐ The study is a separate project or program in and of itself.

THANK YOU FOR COMPLETING THIS REPORTING FORM.

r. 4/78

ENERGY RESEARCH INFORMATION SYSTEM

1.1 FOSSIL FUELS - COAL - GENERAL

00001575

PROJECT TITLE
UPDATED COAL PRODUCTION FORECAST FOR THE NORTHERN GREAT PLAINS
INVESTIGATOR(S)
DR. ARNOLD J. SILVERMAN / DR. JOHN DUFFIELD
BRADLEY HARR / DON SNOW / MICHAEL LEE
RESEARCH INSTITUTION
UNIVERSITY OF MONTANA
DEPT. OF GEOLOGY
MISSOULA, MT 59812
PRIMARY SPONSOR
MONTANA MINING AND MINERAL RESEARCH INSTITUTE
MONTANA COLLEGE OF MINERAL SCIENCE AND TECH.
BUTTE, MT 59701
PRIMARY FUNDING AMOUNT
$126,671
TIME FRAME
JANUARY 1, 1980 TO SEPT. 30, 1981
LOCATION
MT - ND - SD - WY
ABSTRACT

THE OBJECTIVES OF THE STUDY ARE TO EXAMINE AND INTERPRET FACTOR THAT MAY AFFECT COAL AND ALTERNATIVE ENERGY DEVELOPMENT IN THE NORTHERN GREAT PLAINS (NGP) AND ITS MARKET AREAS. SPECIFICALLY THE STUDY WILL ANALYZE ELECTRIC FORECASTING MODELS USED BY REGULATORY AGENCIES IN STATES WITHIN THE NGP COAL MARKET, LONG-RANGE DEMAND FORECASTING AND ELECTRIC POWER GENERATION MODELS, THE STATUS AND PROSPECTS FOR NUCLEAR POWER DEVELOPMENT, TRANSPORTATION OPTIONS FOR COAL MOVEMENT, FEDERAL AND STATE POLICY IN FUEL SUPPLY DEVELOPMENT AND PRODUCTION, ENVIRONMENTAL CONTROL COSTS, FUEL ALTERNATIVES WITHIN THE NGP REGION AND FUEL EXPORT FROM THE REGION BY PIPELINE OR WIRE. IT WILL IN ADDITION PROVIDE A SHORT-TERM PRODUCTION FORECAST.

00001576

PROJECT TITLE
PROJECT TO ASSIST THE STATES OF THE OLD WEST REGIONAL COMMISSION IN THE ORDERLY DEVELOPMENT OF COAL RESOURCES
SOURCE NUMBER
10176010
INVESTIGATOR(S)
DOUGLAS LARSON
RESEARCH INSTITUTION
WESTERN INTERSTATE ENERGY BOARD
2500 STAPLETON PLAZA
3333 QUEBEC STREET
DENVER, CO 80207
PRIMARY SPONSOR
OLD WEST REGIONAL COMMISSION
228 HEDDEN-EMPIRE BUILDING
BILLINGS, MT 59101
PRIMARY FUNDING AMOUNT
$25,000
TIME FRAME
NOVEMBER 1, 1980 TO OCTOBER 31, 1981
LOCATION
MT - NE - ND - SD - WY
ABSTRACT

THE OBJECTIVES OF THE CONTRACT ARE: 1) TO IMPROVE COORDINATION OF STATE AND FEDERAL EFFORTS TO PROVIDE FOR THE DEVELOPMENT OF WESTERN COAL RESOURCES WHILE MINIMIZING ENVIRONMENTAL, SOCIAL, AND ECONOMIC PROBLEMS; 2) TO IDENTIFY, ANALYZE AND REPORT FEDERAL AND NON-FEDERAL COAL-RELATED DEVELOPMENTS AND DECISION-MAKING; AND 3) TO ANALYZE STATE LEGISLATION AND PROGRAMS OF PARTICULAR IMPORTANCE TO THE STATES OF THE COMMISSION WHEN SO DIRECTED BY THE CONTRACTOR'S COAL COMMITTEE.

00001577

PROJECT TITLE
DOE SEAMPLAN EXTENSIONS: COMPUTERIZED SURFACE MINE PLANNING
SOURCE NUMBER
26000667
INVESTIGATOR(S)
DR. DAVID F. GIBSON / DWAIN NELL / LEMOYNE MATLOCK /
SARAH LEAKE / ED MOONEY
RESEARCH INSTITUTION
MONTANA STATE UNIV.
COLLEGE OF ENGINEERING
BOZEMAN, MT 59717
PRIMARY SPONSOR
U.S. DEPT. OF ENERGY
SURFACE COAL MINING BRANCH
BOX 2587
CARBONDALE, IL 62901
PRIMARY FUNDING AMOUNT
$184,487
TIME FRAME
OCTOBER 1, 1980 TO OCTOBER 1, 1982
LOCATION
NATIONWIDE APPLICABILITY
ABSTRACT

OBJECTIVES: SEAMPLAN IS A COMPUTERIZED SYSTEM FOR SELECTING MINING/RECLAMATION METHODS, EQUIPMENT, AND PROCEDURES THAT OPTIMIZE COAL MINE PRODUCTION AND MINIMIZE COST. THE SPECIFIC OBJECTIVES OF THIS PROJECT ARE TO MODIFY AND EXPAND THE PRESENT COMPUTERIZED MINE PLANNING SYSTEM, SEAMPLAN, TO PROVIDE A PRACTICAL TOOL FOR USE BY THE COAL MINING INDUSTRIES. THE

PLANNING SYSTEM WILL BE DESIGNED FOR USE BY MINING PERSONNEL WITH NO PRIOR COMPUTER EXPERIENCE, AND WILL BE SUITED FOR IMPLEMENTATION ON MINI-COMPUTERS CURRENTLY IN USE BY THE COAL MINING INDUSTRIES.

APPROACH: THE APPROACH IS DETERMINED BY TECHNICAL REQUIREMENTS DEFINED BY DOE. IT INVOLVES ANALYZING PRODUCTIVE OPERATIONS AND DATA NEEDS, MODELING ACTIVITIES, PROGRAMMING, DEBUGGING, TESTING AND VALIDATION OF THE DEVELOPED SYSTEM. REQUIREMENTS CONSIST OF THIRTEEN TASKS AND PERFORMED CONCURRENTLY UNDER THRE PHASES: PHASE I - REMOTE DATA ENTRY AND REVIEW; PHASE II - LEVEL 2 PRODUCTION ANALYSIS MODULE REFINEMENTS; AND PHASE III - TRUCK AND SHOVEL ANALYSIS AND DESIGN.

RESULTS: PROJECT IMPORTANCE LIES IN THE FACT THAT A CONSISTENT AND RELIABLE COMPUTERIZED SYSTEM WILL BE AVAILABLE FOR USE BY PERSONNEL IN COAL MINING TO ASSIST IN THE PLANNING STAGES OF THE COAL MINING OPERATION. THIS SYSTEM WILL REDUCE COST AS WELL AS TIME INVOLVED IN THE PLANNING PHASES.

00001578

PROJECT TITLE
COAL RESOURCES, FORT PECK INDIAN RESERVATION, MONTANA
SOURCE NUMBER
9420-02212
INVESTIGATOR(S)
H. H. ARNDT
RESEARCH INSTITUTION
U. S. GEOLOGICAL SURVEY, GEOLOGIC DIV.
BRANCH OF COAL RESOURCES
BOX 25046 MS939
DENVER FEDERAL CENTER, BLDG. 25
DENVER, CO 80225
PRIMARY SPONSOR
U. S. GEOLOGICAL SURVEY, GEOLOGIC DIV.
BRANCH OF COAL RESOURCES
BOX 25046 MS939
DENVER FEDERAL CENTER, BLDG. 25
DENVER, CO 80225
PRIMARY FUNDING AMOUNT
1979: $165,300
TIME FRAME
MAY 1978 TO CONTINUING
LOCATION
MT - SHERIDAN CO., DANIELS CO., ROOSEVELT CO.
ABSTRACT

THE EASTERN PART OF THE FORT PECK INDIAN RESERVATION IS KNOWN TO CONTAIN POTENTIALLY RECOVERABLE LIGNITIC COAL AT SEVERAL PLACES. THE RELATIONSHIP OF THE KNOWN COAL DEPOSITS TO EACH OTHER, AND TO OTHER RECOVERABLE DEPOSITS THAT MAY BE PRESENT IS LITTLE UNDERSTOOD. VERY LITTLE DETAILED INFORMATION HAS BEEN ASSEMBLED FOR THE USE OF THE INDIANS OR THE FEDERAL GOVERNMENT ABOUT THE QUANTITY AND QUALITY OF COAL IN THE RESERVATION. IN THE COURSE OF INVESTIGATIONS BEGUN MAY 1978, EXISTING INFORMATION WILL BE COMPILED AND EVALUATED TO DETERMINE AREAS AND LOCATIONS WHERE ADDITIONAL INFORMATION IS REQUIRED TO ASSESS THE COAL RESOURCES IN THE EASTERN PART OF THE RESERVATION. RECONNAISSANCE AND DETAILED GEOLOGIC MAPPING WILL AT PLACES BE AUGMENTED BY EXPLORATORY DRILLING TO OBTAIN REQUIRED INFORMATION. ACTIVITIES DURING THE CURRENT FISCAL YEAR WILL BE CHIEFL INVOLVED IN THE MAPPING AND COAL EXPLORATORY DRILLING PHASES OF THE PROGRAM.

00001579

PROJECT TITLE
COAL RESOURCES, CROW INDIAN RESERVATION, MONTANA
SOURCE NUMBER
9420-02206
INVESTIGATOR(S)
W. J. MAPEL
RESEARCH INSTITUTION
U. S. GEOLOGICAL SURVEY, GEOLOGIC DIV.
BOX 25046 MS939
DENVER FEDERAL CENTER, BLDG. 25
DENVER, CO 80225
PRIMARY SPONSOR
U. S. GEOLOGICAL SURVEY, GEOLOGIC DIV.
BOX 25046 MS939
DENVER FEDERAL CENTER, BLDG. 25
DENVER, CO 80225
PRIMARY FUNDING AMOUNT
1979: $103,700
TIME FRAME
JULY 1978 TO CONTINUING
LOCATION
MT - BIG HORN CO.
ABSTRACT

PREPARE GEOLOGIC MAPS AND COAL RESOURCE ESTIMATES FOR COAL-BEARING PART OF CROW INDIAN RESERVATION NORTH OF T. 6 S., BIG HORN COUNTY, MONTANA.

00001580

PROJECT TITLE
THE ANALYTICAL AND ORGANIC CHEMISTRY OF LIGNITE AND SOLVENT REFINED LIGNITE
SOURCE NUMBER
INT79-16894
INVESTIGATOR(S)
VIRGIL STENBERG

RESEARCH INSTITUTION
UNIV. OF NORTH DAKOTA
DEPT. OF CHEMISTRY
UNIVERSITY STATION
GRAND FORKS, ND 58201
PRIMARY SPONSOR
U. S. NATIONAL SCIENCE FOUNDATION
DIV. OF INTERNATIONAL PROGRAMS
1800 G ST., N.W.
WASHINGTON, DC 20550
PRIMARY FUNDING AMOUNT
$17,000
TIME FRAME
APRIL 1980 TO SEPTEMBER 1982
LOCATION
ND
ABSTRACT

THIS AWARD WILL SUPPORT PROFESSOR VIRGIL STENBERG OF THE UNIVERSITY OF NORTH DAKOTA IN GRAND FORKS FOR A PERIOD OF TWO YEARS IN A PROGRAM OF COOPERATIVE RESEARCH WITH PROFESSOR KOZO TANABE OF HOKKAIDO UNIVERSITY IN JAPAN FOR THE PURPOSE OF STUDYING THE ORGANIC CHEMISTRY OF LIGNITE COAL LIQUEFACTION. THE MAJOR OBJECTIVE OF THE RESEARCH IS THE UPGRADING OF LIGNITE INT PREMIUM LIQUID FUELS AND CHEMICAL FEEDSTOCKS. SPECIFICALLY, THE INVESTIGATORS WILL STUDY THE TECHNIQUES OF SILYLATION, ACETYLATION, AND METHYLATION AS A MEANS OF INCREASING THE SOLUBILITY OF PREASPHALTENES IN A VARIETY OF SOLVENTS; WILL COMPARE THE TYPES OF STRUCTURAL INFORMATION THAT CAN BE OBTAINE THROUGH USE OF DERIVATIZATION AND DEGRADATION TECHNIQUES; WILL DETERMINE THE EXTENT OF SOLUBILIZATION OBTAINED IN A SERIES OF SOLVENTS THAT COULD BE USED IN COLUMN CHROMATOGRAPHIC SEPARATION PROCEDURES; WILL STUDY THE VARIATION IN SOLUBILITY AS A FUNCTION OF MOLECULAR WEIGHT; AND WILL CLEAVE ETHERS PRESENT IN PREASPHALTENES USING BORON TRIBROMIDE OR IODOTRIMETH SILANE. THIS PROJECT IS SPONSORED JOINTLY BY NSF AND BY THE JAPAN SOCIETY FOR THE PROMOTION OF SCIENCE UNDER THE U.S.-JAPAN COOPERATIVE SCIENCE PROGRAM.

00001581

PROJECT TITLE
LIGNITE COMBUSTION TEST PROJECT
SOURCE NUMBER
EW-78-C-03-2030
INVESTIGATOR(S)
R. H. VANDER MOLEN
RESEARCH INSTITUTION
COMBUSTION POWER CO. INC.,
DEPT. OF ENGINEERING
1346 WILLOW RD.
MENLO PARK, CA 94025
PRIMARY SPONSOR
U. S. DEPT. OF ENERGY
GRAND FORKS ENERGY RESEARCH CENTER
UNIVERSITY STATION, BOX 8213
GRAND FORKS, ND 58202
PRIMARY FUNDING AMOUNT
NOT AVAILABLE
TIME FRAME
MAY 1978 TO DECEMBER 1979
LOCATION
ND
ABSTRACT

NORTH DAKOTA LIGNITE WILL BE BURNED IN A 36-INCH DIAMETER FLUIDIZED BED COMBUSTOR AT LOW EXCESS AIR CONDITIONS. PROGRAM OBJECTIVES ARE TO DETERMINE SULFUR RETENTION PROPERTIES OF THE ALKALINE ASH INHERENT IN LIGNITE. THIS WORK WILL BE AN EXTENSION OF TESTS PERFORMED AT DOE'S GFETC IN A 6-INCH DIAMETER FLUIDIZED BED. A SERIES OF THIRTEEN 80-HOUR TESTS WILL BE CONDUCTED OVER RANGES OF BED TEMPERATURES FROM 1300 TO 1800 DEGREES F, OF SUPERFICIAL VELOCITY FROM 3 TO 9 FT/SEC, AND AT EXCESS AIR LEVELS OF 10, 20, AND 50 PERCENT. BED HEAT EXTRACTION WILL BE ACCOMPLISHED BY A SERIES OF WATER COILS IMMERSED IN THE BED; HEAT TRANSFER COEFFICIENTS WILL BE DETERMI AND CORROSION SAMPLES WILL BE SENT TO OAK RIDGE NATIONAL LAB FOR ANALYSIS. SULFUR SUPPRESSION WILL BE INVESTIGATED WITH AND WITHOUT SORBENT ADDITIVE AND WITH AND WITHOUT THE FORCED RECIRCULATION OF A PORTION OF ELUTRIATED SOLIDS BY USE OF A RECYCLE CYCLONE. AN ADDITIONAL OBJECTIVE IS THE CHARACTERIZATION OF GASEOUS AND PARTICULATE FLUE GAS CONTAMINANTS. DETAILED DESIGN OF EQUIPMENT MODIFICATIONS REQUIRED TO IMPLEMEN THE TEST PROGRAM HAVE BEEN COMPLETED.

00001582

PROJECT TITLE
PROCESS OF CLINKER FORMATION
SOURCE NUMBER
9530-02425
INVESTIGATOR(S)
D. A. COATES
RESEARCH INSTITUTION
U. S. GEOLOGICAL SURVEY, GEOLOGIC DIV.
BOX 25046 MS939
DENVER FEDERAL CENTER, BLDG. 25
DENVER, CO 80225
PRIMARY SPONSOR
U. S. GEOLOGICAL SURVEY, GEOLOGIC DIV.
BOX 25046 MS939
DENVER FEDERAL CENTER, BLDG. 25
DENVER, CO 80225
PRIMARY FUNDING AMOUNT
1979: $67,700
TIME FRAME

OCTOBER 1978 TO CONTINUING

LOCATION

WY - MT - POWDER RIVER BASIN

ABSTRACT

TO UNDERTAKE INTEGRATED STUDIES OF NATURAL CLINKER IN THE CENTRAL REGION, BEGINNING IN THE POWDER RIVER BASIN, WYOMING AND MONTANA. THE CLINKER, ROCK THAT HAS BEEN BAKED AND FUSED WHEN BEDS OF COAL, OR OIL SHALE IN A FEW CASES, HAVE BURNED IN THE GROUND, FORMS A MAJOR PART OF THE LANDSCAPE IN THE POWDER RIVER BASIN AND IS ABUNDANT IN OTHER BASINS THROUGHOUT THE WESTERN INTERIOR. ASPECTS TO BE STUDIED INCLUDE INTERNAL STRUCTURES, STRATIGRAPHY, MINERALOGY AND PETROLOGY, SURFACE AND GROUND WATE HYDROLOGY, GEOPHYSICAL AND ENGINEERING PROPERTIES, GEOCHEMISTRY AGE, RELATION TO COAL THICKNESS, AND RELATION TO LANDSCAPE DEVELOPMENT. THE INTERFACE BETWEEN COAL AND CLINKER WILL BE STUDIED AND MAPPED IN DETAIL IN SELECTED LOCALITIES TO DECIPHER THE SEQUENCE OF EVENTS DURING BURNING. OBSERVATION OF ACTIVE COAL FIRES WILL BE CORRELATED WITH KNOWLEDGE OF CLINKER TO AID IN UNDERSTANDING THE BURNING PROCESS.

00001583

PROJECT TITLE

ECONOMIC IMPACT OF BUREAU OF LAND MANAGEMENT LEASING POLICY IN MONTANA

SOURCE NUMBER

0079243, MON00087

INVESTIGATOR(S)

R. L. STROUP

RESEARCH INSTITUTION

MONTANA STATE UNIV.
AG. EXP. STATION
DEPT. OF AGRICULTURAL ECONOMICS
BOZEMAN, MT 59715

PRIMARY SPONSOR

U. S. DEPT. OF AGRICULTURE
COOP. RESEARCH OFFICE
BOZEMAN, MT 59715

PRIMARY FUNDING AMOUNT

NOT AVAILABLE

TIME FRAME

JULY 1979 TO SEPTEMBER 1981

LOCATION

MT

ABSTRACT

OBJECTIVE: DESCRIBE AND ESTIMATE THE IMPACTS OF BLM POLICIES ALTERNATIVE TO EXISTING POLICIES ON COAL LEASING AND GRAZING RIGHTS LEASING. IN EACH CASE, CONSIDER THE LAND BENEFITS AS THE IMPACT UPON NATIONAL INTERESTS, MONTANA, LOCAL INTERESTS AND POTENTIAL LESSEES. FOR COAL LEASING, IMPORTANT ALTERNATIVE TO BE INVESTIGATED WILL INCLUDE DIFFERENT RATES AND GEOGRAPHICA PATTERNS OF LEASING.

APPROACH: USE UPON THE EXTENSIVE WORK ALREADY DONE ON RURAL AREA AND SMALL TOWN IMPACTS BY THE USDA TEAM LED BY LLOYD BENDE PROJECT THE ECONOMIC RESULTS (FROM SEVERAL ACCOUNTING STANCES) OF SPECIFIED COAL LEASING POLICIES AVAILABLE TO THE BLM. USE STANDARD MICROTHEORY AND THE PROPERTY RIGHTS PARADIGN TO PREDICT MARKET AND BUREAUCRATIC REACTION, AND ECONOMIC (AND ENVIRONMENTAL) IMPACTS OF POSSIBLE CHANGES.

00001584

PROJECT TITLE

EVALUATE COAL DEPOSITS IN PARTS OF MCCONE, PRAIRIE, GARFIELD AND DAWSON COUNTIES, MONTANA, BY MAPPING, DRILLING OR ACQUISITION OF NEW DATA FROM OTHER SOURCES

INVESTIGATOR(S)

HERBERT B. WINCENTSEN

RESEARCH INSTITUTION

U. S. GEOLOGICAL SURVEY
P. O. BOX 2550
BILLINGS, MT 59103

COOPERATOR

MONTANA BUREAU OF MINES AND GEOLOGY
BUTTE, MT 59701

PRIMARY SPONSOR

U. S. GOVERNMENT

PRIMARY FUNDING AMOUNT

NOT AVAILABLE

TIME FRAME

1974 TO CONTINUING

LOCATION

MT - MCCONE CO., GARFIELD CO., DAWSON CO., PRAIRIE CO.

ABSTRACT

IN RECENT YEARS THE GEOLOGICAL SURVEY HAS ENGAGED IN AN ACTIVE EXPLORATION PROGRAM IN THE FORT UNION AREA EVALUATING FEDERALLY OWNED MINERALS (PRINCIPALLY COAL). TO EXPAND OUR KNOWLEDGE OF THE COAL RESOURCE BASE WE HAVE DEVOTED OUR EFFORTS THROUGH MAPPING AND DRILLING TO THE ESTABLISHMENT AND DELINEATION OF KNOWN RECOVERABLE COAL RESOURCE AREAS (KRCRAS). THESE DETERMINE WHERE FEDERAL COAL WILL BE LEASED COMPETITIVELY. BYPRODUC OF THESE ACTIVITIES CAN INCLUDE SOME PUBLISHING OF COAL MAPS AND REPORTS WHICH COLLECTIVELY CAN ADD SIGNIFICANTLY TO THE OVERALL DATA BASE OF FORT UNION COAL DEPOSITS. ALL SURVEY DATA IS MADE PUBLIC AS TIMELY AS POSSIBLE IN OPEN-FILE RELEASES AND VARIOUS PUBLICATIONS.

REPORTS AND PUBLICATIONS

O. F. REPORT #79-1578 / COAL DEPOSITS OF THE HEDSTROM LAKE AREA MCCONE, GARFIELD, PRAIRIE, CUSTER, AND ROSEBUD COUNTIES, MONTAN H. WINCENTSEN / 11/6/79

O. F. REPORT #79-1052 / COAL GEOLOGY OF THE NORTHEAST CIRCLE AREA, MCCONE AND DAWSON COUNTIES, MONTANA / H. WINCENTSEN / 6/4/79

O. F. REPORT #78-367 / PRELIMINARY STUDY OF THE COAL DEPOSITS

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   IN THE CIRCLE AREA, MONTANA / 3/19/78
PUBLICATIONS ADDRESS
   U. S. GEOLOGICAL SURVEY / OPEN-FILE SERVICES SECTION /
   BRANCH OF DISTRIBUTION / BOX 25425, FEDERAL CENTER /
   DENVER, CO  80225
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00001585

PROJECT TITLE
RESIDUAL OIL SATURATION TECHNOLOGY EVALUATION IN A CONSOLIDATED SANDSTONE RESERVOIR: BELL CREEK FIELD, MONTANA

SOURCE NUMBER
ET-78-C-03-2180

INVESTIGATOR(S)
F. R. MYAL

RESEARCH INSTITUTION
GARY OPERATING CO.
4 INVERNESS CT. E.
ENGLEWOOD, CO 80110

PRIMARY SPONSOR
U. S. DEPT. OF ENERGY
DIV. OF FOSSIL FUEL EXTRACTION
WASHINGTON, DC

PRIMARY FUNDING AMOUNT
NOT AVAILABLE

TIME FRAME
SEPTEMBER 1978 TO CONTINUING

LOCATION
MT - POWDER RIVER CO.

ABSTRACT

THIS EFFORT, PART OF A PROGRAM TO COMPARE CURRENT OIL SATURATION MEASUREMENT TECHNOLOGY IN VARIOUS RESERVOIR TYPES, WILL BE PERFORMED IN TWO PHASES. PHASE I INCLUDES DRILLING AN OBSERVATION TEST WELL WITHIN A DESIGNATED AREA IN THE WATERFLOODED PORTION OF THE BELL CREEK FIELD, ADJACENT TO THE NORTHWEST FROM THE ONGOING DOE MICELLAR-POLYMER PILOT TEST THERE, AND PERFORMING A SERIES OF RESIDUAL OIL MEASUREMENTS, INCLUDING A COMPLETE SUITE OF STANDARD OPEN HOLE LOSS, PRESSURE CORE AND ANALYSIS, LOG-INJECT-LOG, NUCLEAR MAGNETIC LOG, CARBON--OXYGEN LOG, DIELECTRIC LOG, AND SINGLE WELL TRACER. FOLLOWING PHASE I A MINI-MICELLAR-POLYMER FLOOD OF THE AREA SURROUNDING THE WELL WILL BE CONDUCTED BY INJECTING FLUIDS IDENTICAL IN AMOUNT AND CHARACTER TO THOSE BEING USED IN THE ADJACENT 40-ACRE PILOT PROJECT. SUBSEQUENT TO THE MINI-TEST, PHASE II WILL BE CONDUCT CONSISTING OF A REPEAT OF THE PHASE I OIL SATURATION TESTS APPROPRIATE AT THAT TIME. FOLLOWING THE PHASE I AND II FIELD TESTS, DETAILED ANALYSIS OF THE INDIVIDUAL ROS DETERMINATION METHODS WILL BE PERFORMED AND RECOMMENDATIONS OF THE MOST EFFECTIVE COMBINATION OF TECHNOLOGY FOR DETERMINING RESIDUAL OIL IN A CONSOLIDATED SANDSTONE RESERVOIR WILL BE MADE.

00001586

PROJECT TITLE
LAND RESTORATION FOR IN SITU OIL SHALE, COAL, AND TAR SANDS PROCESSING TECHNOLOGIES

SOURCE NUMBER
AS20-79LC01761

INVESTIGATOR(S)
Q. D. SKINNER

RESEARCH INSTITUTION
UNIV. OF WYOMING
ROCKY MOUNTAIN INST. OF ENERGY AND ENV.
RANGE MANAGEMENT DIVISION
LARAMIE, WY 82071

PRIMARY SPONSOR
U. S. DEPT. OF ENERGY
LARAMIE ENERGY TECH. CENTER
LARAMIE, WY 80070

PRIMARY FUNDING AMOUNT
NOT AVAILABLE

TIME FRAME
JULY 1979 TO SEPTEMBER 1980

LOCATION
WY - CARBON CO., SWEETWATER CO.

ABSTRACT
THE OBJECTIVE OF THIS PROJECT IS TO DEVELOP METHODS FOR INITIATION OF RECLAMATION AND MONITORING OF RECLAMATION SUCCESS AT THE LETC EXPERIMENTAL FIELD SITES FOR IN SITU OIL SHALE AND TAR SANDS PROCESSING AND UNDERGROUND COAL GASIFICATION. SUPPORT SERVICES SUCH AS CONSULTATION ON PERMIT APPLICATIONS WILL BE PROVIDED AS NEEDED AND REQUESTED BY LETC. MAPPING OF VEGETATIO FOR THE ROCK SPRINGS, WYOMING, SITE IS IN PROGRESS. MAPPING FOR THE GREEN RIVER, WYOMING, AND HANNA, WYOMING, SITES IS TO BEGIN SOON. RECLAMATION PLANS FOR ALL THREE SITES WILL BE PREPARED AFTER THE SAMPLING AND MAPPING PROCEDURES HAVE BEEN COMPLETED.

00001587

PROJECT TITLE
PROTECTION OF SOIL, WATER, AND AIR RESOURCES ON MINED LAND: NEW LAND RECLAMATION TECHNOLOGY

SOURCE NUMBER
3605-20770-004

INVESTIGATOR(S)
R. E. RIES / F. M. SANDOVAL

RESEARCH INSTITUTION
U. S. DEPT. OF AGRICULTURE
MANDAN, ND 58554

PRIMARY SPONSOR
U. S. DEPT. OF AGRICULTURE
WASHINGTON, DC

PRIMARY FUNDING AMOUNT
NOT AVAILABLE

TIME FRAME
NOVEMBER 1977 TO NOVEMBER 1982

LOCATION
ND

ABSTRACT
THE OBJECTIVE IS TO DEVELOP TECHNOLOGY THAT WILL ENSURE THE PROTECTION OF SOIL, WATER, AND AIR RESOURCES ASSOCIATED WITH LAND DISTURBED BY STRIP MINING. THE APPROACH WILL BE TO SUPPLEMENT ONGOING MINED-LAND RECLAMATION RESEARCH. EXPERIMENTS ARE BEING CONDUCTED TO DETERMINE: (1) THE EFFECTS OF DISTURBANCE BY STRIP MINING ON SOIL PROPERTIES (AGGREGATION, HYDRAULIC CONDUCTIVITY, STRENGTH, NUTRIENT AVAILABILITY, MICROBIAL ACTIVITY, SALT CONTENT AND MOVEMENT, ETC.); (2) WATER BALANCES, QUALITY, AND MOVEMENT; AND (3) EFFECTS ON PROTECTION OF AIR QUALITY. FROM THE INFORMATION DERIVED, VARIOUS RECLAMATION TECHNIQUES ARE BEING EVALUATED TO DETERMINE THEIR POTENTIAL FOR PROTECTING THESE NATURAL RESOURCES. SEE ERIS PROJECT NO. 00001587 FOR A RELATED PROJECT.

00001588

PROJECT TITLE
FACTORS AFFECTING PRODUCTIVITY OF RECLAIMED MINED LAND

SOURCE NUMBER
3605-207770-003

INVESTIGATOR(S)
R. E. RIES / L. HOFMAN

RESEARCH INSTITUTION
U. S. DEPT. OF AGRICULTURE
MANDAN, ND 58554

PRIMARY SPONSOR
U. S. DEPT. OF AGRICULTURE
WASHINGTON, DC

PRIMARY FUNDING AMOUNT
NOT AVAILABLE

TIME FRAME
OCTOBER 1977 TO OCTOBER 1982

LOCATION
ND

ABSTRACT
OBJECTIVES ARE TO: (1) EVALUATE EFFECTS OF THICKNESS AND QUALIT OF REPLACED SOIL MATERIAL ON PRODUCTION OF SEVERAL CROPS; AND (2) DETERMINE EFFECTS OF GRAZING ON SOIL, PLANT AND ANIMAL PERFORMANCE. SEVERAL CROP SPECIES ARE BEING GROWN ON RECLAMATION SPOILS COVERED WITH VARIABLE DEPTH AND QUALITY OF SOIL MATERIAL AND RESULTING PLANT GROWTH, WATER AND NITROGEN BALANCES, AND

SALT MOVEMENT ARE BEING MONITORED. DEFINITION OF WATER MOVEMEN NEAR AND ACROSS SOIL-SPOIL INTERFACES IS BEING ATTEMPTED. REVEGETATED MINEDLAND IS BEING GRAZED AT SEVERAL INTENSITIES WITH STEERS, AND EFFECTS ON SOIL PHYSICAL PROPERTIES, PLANT STABILITY, AND ANIMAL PERFORMANCE ARE BEING DETERMINED. SEE ERIS PROJECT NO. 00001586 FOR A RELATED PROJECT.

00001589

PROJECT TITLE
SELECTION OF SUPERIOR TREE ECOTYPE-MYCORRHIZAL FUNGI ASSOCIATIONS FOR MINELAND REVEGETATION
SOURCE NUMBER
0071198, COL01405
INVESTIGATOR(S)
C. P. REID
RESEARCH INSTITUTION
COLORADO STATE UNIV.
DEPT. OF FOREST & WOOD SCIENCES
FORT COLLINS, CO 80523
PRIMARY SPONSOR
U. S. DEPT. OF AGRICULTURE
COOP. RESEARCH OFFICE
FORT COLLINS, CO 80521
PRIMARY FUNDING AMOUNT
NOT AVAILABLE
TIME FRAME
JULY 1976 TO AUGUST 1979
LOCATION
CO - NE - WY
ABSTRACT

OBJECTIVE: SELECT SUPERIOR TREE PLANTING STOCK FOR REVEGETATION OF MINING WASTES THROUGH INTRASPECIFIC SELECTION OF TREE ECOTYPES, SELECTION OF SPECIFIC MYCORRHIZAL FUNGI ASSOCIATES, AND FORMATION OF MYCORRHIZAE.

APPROACH: TREE SEEDLINGS FROM 4 TO 5 ECOTYPES OF FOUR TREE SPECIES (PINUS PONDEROSA, P. EDULIS, P. FLEXILIS, AND JUNIPERUS SCOPULORUM) WILL BE GROWN WITH FOUR DIFFERENT MYCORRHIZAL FUNGI (PISOLITHUS TINCTORIUS, CENOCOCCUM GRANIFORME SYLLUS GRANULATUS, AND GLOMUS MUSSEA) UNDER GREENHOUSE CONDITIO TO ASSESS THE GROWTH PERFORMANCE AND MYCORRHIZAL FORMATION SUCCESS OF THE VARIOUS TREE ECOTYPE-FUNGAL SPECIES INTERACTIONS AFTER ONE GROWING SEASON IN THE GREENHOUSE. SEEDLINGS FROM THE 3 BEST PERFORMING ECOTYPES OF EACH TREE SPECIES WILL BE PLACED IN MICROPLOTS OF CA. 40 LBS/AC. BI-WEEKLY RECORDS OF MORTALITY HEIGHT GROWTH AND STEM DIAMETER WILL BE MAINTAINED THROUGH ONE GROWING SEASON. THE MICROPLOT STUDY WILL BE OF A REPLICATED FACTORIAL DESIGN TO EXAMINE INTERACTIONS BETWEEN MYCORRHIZAL FUNGI, ECOTYPES, TREE SPECIES, SPOIL MATERIAL, AND REPLICATES.

PROGRESS: IN THE FALL OF 1976, SEED FROM SEVERAL TREE SPECIES, (PINUS PONDEROSA, PINUS EDULIS, PINUS FLEXILIS, AND JUNIPERUS SCOPULORUM), WERE COLLECTED FROM ECOLOGICALLY DIVERSE AREAS IN AND ALONG THE FRONT RANGE OF THE COLORADO ROCKY MOUNTAINS. THE CONE CROP FOR THE YEAR WAS VERY POOR, PARTICULARLY IN THE CASE OF P. EDULIS AND P. FLEXILIS. BECAUSE OF THIS, PLANNED STUDIES WITH P. EDULIS AND P. FLEXILIS WERE REPLACED BY P. CONTORTA WHI PRODUCED GOOD CONE CROP THROUGHOUT ITS NATURAL RANGE IN THE FRONT RANGE. ADDITIONAL SEED WAS COLLECTED IN THE FALL OF 1977 FROM P. PONDEROSA STANDS INDIGENOUS TO HARSH OUTLYING SITES IN EASTERN WYOMING AND WESTERN NEBRASKA, SITES AT THE EXTREME EASTERN EDGE OF THE RANGE OF P. PONDEROSA. SEED WAS COLLECTED FROM JUNIPERUS SCOUPULORUM IN THE FALL OF 1976, HOWEVER, NO SEE GERMINATED EITHER BEFORE OR AFTER THE RECOMMENDED STRATIFICATI PERIOD. BECAUSE OF THIS, IT WAS DECIDED THAT VEGETATIVE PROPAGATION OF J. SCOPULORUM CUTTINGS USING ETHREL AND IBA WOULD BE THE BEST WAY TO PRODUCE J. SCOPULORUM SEEDLINGS FOR THE PROJECT

00001590

PROJECT TITLE
PHYTOTOXICITY AND PLANT RESPONSE TO AQUEOUS EFFLUENTS DERIVED FROM IN SITU FOSSIL FUEL PROCESSING
SOURCE NUMBER
RMIEE TA NO. 012
INVESTIGATOR(S)
Q. D. SKINNER
RESEARCH INSTITUTION
UNIV. OF WYOMING
ROCKY MOUNTAIN INST. OF ENERGY AND ENV.
PLANT SCIENCE DIVISION
COLLEGE OF AGRICULTURE
LARAMIE, WY 82071
PRIMARY SPONSOR
U. S. DEPT. OF ENERGY
LARAMIE ENERGY RESEARCH CENTER
LARAMIE, WY 82071
PRIMARY FUNDING AMOUNT
1981: $10,000
TIME FRAME
SEPTEMBER 1977 TO OCTOBER 1981
LOCATION
WY
ABSTRACT

THE OBJECTIVES OF THIS PROJECT ARE TO: (1) DEVELOP QUANTITATIVE SHORT-TERM, DIAGNOSTIC SCREENING PROCEDURES FOR PLANT SYSTEMS; (2) USING SUCH PROCEDURES, QUANTITATE THE RESPONSE OF ARID ZONE PLANTS TO PROCESS WATERS DERIVED FROM IN SITU FOSSIL FUEL PROCESSING AND OTHER RELATED WATERS (E.G., LEACHATES, RUNOFF); AND (3) SELECT TOLERANT OR MITIGATORY PLANT SPECIES FOR REVEGETATIO AND REHABILITATION OF DISTURBED AREAS. THE INITIAL APPROACH HAS RESULTED IN THE DEVELOPMENT OF QUANTITATIVE SEED GERMINATION AND HYDROPONIC GROWTH PROCEDURES. SELECTED SPECIES WILL

BE EVALUATED FOR THEIR RESPONSE TO VARIOUS PROCESS-DERIVED WATE THIS WORK WILL RESULT IN A COST-EFFECTIVE APPROACH TO THE SELECTION OF TOLERANT SPECIES FOR REVEGETATION AND REHABILITATION AND WILL PROVIDE INPUT TO THE DEVELOPMENT OF CONTROL MEASURES FOR PROCESS RELATED WATERS. THIS IS A CONTINUATION OF ERIS PROJECT NO. 00001222 (VOL. 3, NO. 1).

00001591

PROJECT TITLE
COMPETITIVE EFFECTS OF INTRODUCED ANNUAL WEEDS ON SOME NATIVE AND RECLAMATION SPECIES IN THE POWDER RIVER BASIN, WYOMING
SOURCE NUMBER
007218
INVESTIGATOR(S)
C. KNIGHT
RESEARCH INSTITUTION
UNIV. OF WYOMING
UNIVERSITY STATION
LARAMIE, WY 82070
PRIMARY SPONSOR
U. S. DEPT. OF ENERGY
OFFICE OF HEALTH AND ENV. RES.
WASHINGTON, DC
PRIMARY FUNDING AMOUNT
NOT AVAILABLE
TIME FRAME
1977 TO CONTINUING
LOCATION
WY - POWDER RIVER BASIN
ABSTRACT

THE EXPERIMENTAL DESIGN CONSISTS OF THREE 20 X 72 M PLOTS, EACH A DIFFERENT DISTANCE FROM INTRODUCED WEED SEED SOURCES. PLOTS WITH AND WITHOUT WEEDS WILL BE COMPARED TO DETERMINE EFFECTS OF THE WEEDS ON THE NATIVE SPECIES INVADING NATURALLY. RANDOMLY SELECTED PLOTS WITH AND WITHOUT WEEDS WILL BE IRRIGATED AT A LEVEL NOT TO EXCEED MAXIMUM PRECIPITATION FOR THE STUDY AREA. AN AREA UNDERGOING RECLAMATION WILL BE STUDIED IN A SIMILAR MANNER, WITH THE FOLLOWING TREATMENTS BEING APPLIED WHERE RECLAMATION SPECIES HAVE BEEN PLANTED: (1) INTRODUCED WEEDS AND WATER, (2) NO WEEDS AND WATER, (3) WEEDS AND NO WATER AND (4) NO WEEDS AND NO WATER. MEASUREMENTS OF THE ECOPHYSIOLOGICAL CHARACTERISTICS WILL BE DONE ON THE DOMINANT SPECIES IN FIELD AND GREENHOUSE EXPERIMENTS. THE EXPERIMENTS HAVE BEEN INITIATED NEAR STRIPMINING SITES IN THE POWDER RIVER BASIN SOUTH OF GILLETTE, WYOMING.

00001592

PROJECT TITLE
GRAZING MANAGEMENT OF RECLAIMED MINED LANDS
SOURCE NUMBER
5609-20770-003
INVESTIGATOR(S)
D. T. BOOTH
RESEARCH INSTITUTION
U. S. DEPT. OF AGRICULTURE
HIGH PLAINS GRASSLANDS RESEARCH STATION
CHEYENNE, WY 82001
PRIMARY SPONSOR
U. S. DEPT. OF AGRICULTURE
WASHINGTON, DC
PRIMARY FUNDING AMOUNT
$300,000
TIME FRAME
DECEMBER 1980 TO DECEMBER 1985
LOCATION
WY
ABSTRACT

THE OBJECTIVE IS TO DETERMINE THE EFFECT OF LIVESTOCK GRAZING ON THE VEGETATION AND SOIL OF RECLAIMED MINE LANDS. THE APPROACH WILL BE TO COLLECT BASIC DATA ON THE EFFECT OF GRAZING ON THE SOIL COMPACTION, WATER INFILTRATION, FORAGE PRODUCTION, SPECIES DIVERSITY, AND EROSION AND THE NECESSITY FOR SPECIAL MANAGEMENT PRACTICES. LANDS THAT HAVE BEEN REVEGETATED WITH A MIXTURE OF FORAGES WILL BE GRAZED AT VARIOUS STOCKING RATES. FORAGE QUALITY, YIELD AND GROUNDCOVER WILL BE MONITORED TO DETERMINE THE EFFECT OF GRAZING ON REGROWTH AND PLANT POPULATIONS AND ANIMAL GAINS WILL BE DETERMINED. EXCLOSURES WILL BE ESTABLISHED FOR BASELINE COMPARISONS ON FORAGE PRODUCTION AND SOIL FACTORS. THESE STUDIES WOULD BE COOPERATIVE WITH THE UNIVERSITY OF WYOMING, ANIMAL SCIENCE DEPARTMENT, AND NRP 201109 AT CHEYENNE. DATA OBTAINED WILL BE USED IN ESTABLISHING A WORKING MODEL OF GRAZING MANAGEMENT OF RECLAIMED LANDS. SPECIES DIVERSITY INFORMATION GENERATED BY ASSOCIATED PROJECTS COULD BE USED IN THIS MODEL TO PREDICT MANAGEMENT REQUIREMENTS AND ALTERNATIVES FOR THOSE SPECIES MIXTURES NOT BEING STUDIED.

00001593

PROJECT TITLE
POTENTIAL REVEGETATION - ANTELOPE CREEK MINE
SOURCE NUMBER
G&C 2-6000-106
INVESTIGATOR(S)
BERNIE JENSEN
RESEARCH INSTITUTION
MONTANA STATE UNIV.
RECLAMATION RESEARCH UNIT
BOZEMAN, MT 59717
PRIMARY SPONSOR
NORTHERN ENERGY RESOURCES CO.

111 S.W. COLUMBIA
PORTLAND, OR 97201
PRIMARY FUNDING AMOUNT
$418,761
TIME FRAME
JULY 1, 1980 TO JUNE 30, 1983
LOCATION
WY - CONVERSE CO.
ABSTRACT

STUDY WILL DETERMINE GROWTH SUPPORTING POTENTIAL OF OVERBURDEN MATERIAL. REVEGETATION METHODS WILL BE EVALUATED INCLUDING SEASONS OF SEEDING, METHODS OF SEEDING, RATES OF SEEDING, RAPID SOIL STABILIZATION AND RELATED TECHNIQUES. INDIVIDUAL SPECIES POTENTIAL WILL BE DETERMINED AND NUMEROUS SPECIES SEED MIXTURES WILL BE EVALUATED.

00001594

PROJECT TITLE
COAL MINE DEFORMATION STUDIES, POWDER RIVER BASIN
SOURCE NUMBER
9550-02415
INVESTIGATOR(S)
C. R. DUNRUD
RESEARCH INSTITUTION
U. S. GEOLOGICAL SURVEY, GEOLOGIC DIV.
BOX 25046 MS939
DENVER FEDERAL CENTER, BLDG. 25
DENVER, CO 80225
PRIMARY SPONSOR
U. S. GEOLOGICAL SURVEY, GEOLOGIC DIV.
BOX 25046 MS939
DENVER FEDERAL CENTER, BLDG. 25
DENVER, CO 80225
PRIMARY FUNDING AMOUNT
1979: $110,600
TIME FRAME
1979 TO CONTINUING
LOCATION
MT - WY - POWDER RIVER BASIN
ABSTRACT

DETERMINE ENGINEERING GEOLOGIC FACTORS AFFECTING LAND USE FOLLOWING MINING OPERATIONS, INCLUDING SUBSIDENCE AND DEFORMATION OF SURFACE MINE HIGHWALLS AND RECLAIMED LANDS IN SELECTED AREAS OF THE POWDER RIVER BASIN. COMPILE MAPS SHOWING COAL MINING AREAS AND SUBSIDENCE IN SELECTED AREAS OF THE POWDER RIVER BASIN. STUDY AND ANALYZE MASS-GRAVITY MOVEMENTS IN RECLAIMED AND/OR ABANDONED SURFACE MINING AREAS. PREPARE TIMEL REPORTS ON MINE DEFORMATION THAT WILL HELP PREDICT THE LONG-TERM STABILITY OF UNDERGROUND AND SURFACE MINES AND THUS WILL AID IN PREPARING REALISTIC GUIDELINES FOR COAL MINING AND MINED LAND RECLAMATION.

00001595

PROJECT TITLE
SUBSIDENCE OF RECLAIMED COAL MINE SPOILS - COLSTRIP, MONTANA
SOURCE NUMBER
I-0002
INVESTIGATOR(S)
J. M. WHITE
RESEARCH INSTITUTION
CARTER MINING CO.
P. O. BOX 109
GILLETTE, WY 82716
PRIMARY SPONSOR
U. S. GEOLOGICAL SURVEY
LAND INFORMATION & ANALYSIS OFFICE
12201 SUNRISE VALLEY DRIVE
MAIL STOP 710
RESTON, VA 22092
PRIMARY FUNDING AMOUNT
NOT AVAILABLE
TIME FRAME
1978 TO CONTINUING
LOCATION
MT - ROSEBUD CO.
ABSTRACT

PRECISE LEVELING SURVEYS AND GROUND AND AERIAL INSPECTIONS WERE CONDUCTED TO DETERMINE THE NATURE AND PRACTICAL EFFECTS OF SUBSIDENCE DUE TO CONSOLIDATION OF RECLAIMED SPOILS AT THE ROSEBUD MINE, COLSTRIP, MONTANA. IN SPOILS 30- TO 40-YEARS OLD SUBSIDENCE OF SPOILS OCCURRING SINCE 1968 AVERAGES 0.1 M, AND IS OF NO PRACTICAL EFFECT. IN SPOILS REHANDLED TO FORM FILL IN 1968, SUBSIDENCE APPROACHES 0.25 M AND IS DUE TO EXCESSIVELY STEEP SIDE SLOPES, AND TO CONSOLIDATION IN RESPONSE TO SATURATION. SUBSIDENCE IN AREAS STRIP MINED SINCE 1971 IS AS GREAT AS 0.6 M IN RESTRICTED AREAS SUBJECT TO SATURATION DUE TO RUN-OFF AND IS APPARENTLY CONFINED TO THE REDISTRIBUTED TOPSOIL. RESEARCH COMPLETED. REPORT IN PREPARATION.

1.4 FOSSIL FUELS - WATER RESOURCES

00001596

PROJECT TITLE
EVALUATION OF SURFACE AND GROUND WATER PROBLEMS ASSOCIATED WITH STRIP MINE SITES: PHASE II. "TRI-STATE PROJECT"
SOURCE NUMBER
26000 964
INVESTIGATOR(S)
DR. P. W. JENNINGS
RESEARCH INSTITUTION
MONTANA STATE UNIV.
DEPT. OF CHEMISTRY
BOZEMAN, MT 59717
PRIMARY SPONSOR
U. S. EPA
CINCINNATI, OH
SECONDARY SPONSOR
MONTANA STATE UNIV.
BOZEMAN, MT 59717
PRIMARY FUNDING AMOUNT
$21,308
SECONDARY FUNDING AMOUNT
$7,900
TIME FRAME
SEPT. 11, 1979 TO SEPT. 11, 1981
LOCATION
DECKER MINE, MT - BLACK THUNDER MINE, WY - FALKIRK MINE, ND
ABSTRACT

THE PORTION OF THIS PROJECT BEING STUDIED IN THIS LABORATORY INVOLVES THE ORGANIC MATERIALS WHICH ARE DISSOLVED IN SURFACE AND GROUND WATER ASSOCIATED WITH STRIP MINING. THE EFFORT HAS BEEN TWO-PRONGED. FIRST, STUDIES ARE BEING MADE OF THE AMOUNT OF DISSOLVED ORGANIC CARBON (DOC) FOUND UNDER DIFFERENT CONDITIONS AND THE EFFECT OF MINING AND RECLAIMING ON THIS PARAMETER. SECOND, THE NATURE OF THE DOC MATERIAL, ESPECIALLY AS THAT RELATES TO THE ABILITY OF THESE MATERIALS TO BIND METAL IS BEING INVESTIGATED. THE CHEMICAL NATURE OF THESE MATERIALS IS BEING STUDIED BY ELECTRON PARAMAGNETIC RESONANCE AND NUCLEAR MAGNETIC RESONANCE SPECTROSCOPY. THIS IS A SUBPROJECT OF ERIS PROJECT 0001476 (VOL. 5, NO. 1)

00001597

PROJECT TITLE
SUBSURFACE WATER QUALITY MODEL FOR WESTERN SURFACE MINE SITES
SOURCE NUMBER
B-053-NDAK
INVESTIGATOR(S)
R. D. KOOB
RESEARCH INSTITUTION
NORTH DAKOTA STATE UNIV.
STATE WATER RESOURCES INST.
FARGO, ND 58102
PRIMARY SPONSOR
U. S. DEPT. OF INTERIOR
OFFICE OF WATER RESEARCH & TECH.
WASHINGTON, DC
SECONDARY SPONSOR
NORTH DAKOTA STATE UNIV. / UNIV. OF NORTH DAKOTA
PRIMARY FUNDING AMOUNT
$36,000
SECONDARY FUNDING AMOUNT
$36,000
TIME FRAME
OCTOBER 1978 TO SEPTEMBER 1980
LOCATION
ND
ABSTRACT

THE OBJECTIVE OF THIS PROGRAM IS TO TEST HYPOTHESES ASSOCIATED WITH A MODEL FOR SUBSURFACE WATER QUALITY IN THE NORTHERN GREAT PLAINS SURFACE MINE AREAS. THE APPROACH IS: (1) TO DETERMINE SULFUR IN OVERBURDEN MATERIALS AS OXIDIZED AND REDUCE FORMS; (2) TO DETERMINE MOLECULAR OXYGEN CONTENT OF SOIL CROSS SECTIONS AND TOTAL ALKALINITY OF OVERBURDEN MATERIALS; AND (3) TO REFINE TECHNIQUES FOR DETERMINING REDOX POTENTIALS OF NATURA WATER SYSTEMS. A FLOW MODEL AND A WATER QUALITY MODEL HAVE BEEN FORMALIZED AS COMPUTER PROGRAMS.

00001598

PROJECT TITLE
ASSESSMENT OF THE POTENTIAL IMPACTS OF PROPOSED ENERGY DEVELOPMENT ON WATER RESOURCES OF NORTHERN CHEYENNE INDIAN RESERVATION, MONTANA
SOURCE NUMBER
R806081-01, 86238-706
INVESTIGATOR(S)
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NORTHERN CHEYENNE TRIBE
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OFFICE OF RESEARCH & DEV.
INDUSTRIAL ENVIRONMENTAL RESEARCH LAB.
5555 RIDGE AVE.
CINCINNATI, OH 45268
PRIMARY FUNDING AMOUNT
NOT AVAILABLE
TIME FRAME

JULY 1978 TO JULY 1980
LOCATION
MT
ABSTRACT

OBJECTIVE: THE PROJECT WILL INCREASE THE DATA BASE ON THE RESERVATION REGARDING WATER QUALITY AND POTENTIAL IMPACTS OF COAL MINING. APPROACH: FIELD MONITORING OF THREE PRIORITY SITES ON THE RESERVATION WILL SUPPLY INFORMATION FOR A NEW AUTOMATIC DATA STORAGE AND RETRIEVAL SYSTEM.

00001599

PROJECT TITLE
ELECTRIC POWER RESEARCH INSTITUTE WATER SUPPLY COMPUTERIZED INFORMATION DIRECTORY
SOURCE NUMBER
1603-2
INVESTIGATOR(S)
DR. DAVID F. PINGRY / DR. JAY F. NUNAMAKER JR. / DR. FRANK W. ALLEN
RESEARCH INSTITUTION
UNIV. OF ARIZONA
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TUCSON, AZ 85721
PRIMARY SPONSOR
ELECTRIC POWER RESEARCH INSTITUTE
3412 HILLVIEW AVE., P. O. BOX 10412
PALO ALTO, CA 94303
PRIMARY FUNDING AMOUNT
$320,000
TIME FRAME
MARCH 1980 TO MARCH 1982
LOCATION
NATIONWIDE APPLICABILITY
ABSTRACT

THE EPRI WSCID IS AN UPDATEABLE, USER-ORIENTED DATA BASE WHICH CONTAINS RELEVANT, AVAILABLE INFORMATION ON WATER SUPPLY AND USE. WHEN COMPLETE, IT WILL CONTAIN INFORMATION ON THE 48 CONTIGUOUS STATES AND WILL ENABLE USERS TO GAIN ACCESS TO INFORMATION ON ALL THE POSSIBLE CONSTRAINTS - NATURAL, TECHNICA ECONOMIC, AND LEGAL - WHICH IMPINGE ON THE WATER SUPPLY PROCESS

THE LOGICAL STRUCTURE OF THE SWCID CONSISTS OF TWO PHYSICAL DATA BASES: MACRO DATA BASE AND MICRO DATA BASE. THE MACRO DATA BASE CONSISTS OF THE FOLLOWING LINKED RECORD TYPES: KEYWORD, DATA BASE, REGION, ORGANIZATION, BIBLIOGRAPHIC ENTRY, CONFERENCE, JOURNAL, AND PUBLISHER. THE MICRO DATA BASE CONTAINS DETAILED DESCRIPTIONS OF EXTERNAL DATA BASES AND ORGANIZATIONS WHICH MAINTAIN WATER SUPPLY DATA.

THE EPRI WSCID IS AVAILABLE ON TYMNET AND TELENET NATIONAL NETWORKS.

REPORTS AND PUBLICATIONS
FINAL REPORT WILL BE SUBMITTED TO FUNDING AGENCY.
PUBLICATIONS ADDRESS
ELECTRIC POWER RESEARCH INSTITUTE
P. O. BOX 10412
PALO ALTO, CA 94303

00001600

PROJECT TITLE
DEVELOPMENT AND APPLICATION OF SED SYSTEM EMPLOYING MICROCOMPUTER CONTROL FOR HPLC OF PHENOLS IN WATER
SOURCE NUMBER
A-063-NDAK
INVESTIGATOR(S)
D. E. TALLMAN / J. L. ANDERSON
RESEARCH INSTITUTION
NORTH DAKOTA STATE UNIV.
DEPT. OF CHEMISTRY
FARGO, ND 58102
PRIMARY SPONSOR
U. S. DEPT. OF INTERIOR, OFFICE OF WATER RESEARCH & TECH.
18TH & C STREETS N.W.
WASHINGTON, DC 20240
PRIMARY FUNDING AMOUNT
NOT AVAILABLE
TIME FRAME
OCTOBER 1979 TO CONTINUING
LOCATION
ND
ABSTRACT

THE PROPOSED RESEARCH IS DIRECTED TOWARDS THE DEVELOPMENT OF IMPROVED ANALYTICAL METHODS FOR THE SPECIATION AND QUANTITATION OF ORGANIC COMPOUNDS IN NATURAL WATERS. OF SPECIFIC INTEREST ARE METHODS FOR THE ANALYSIS OF MONOHYDRIC AND POLYHYDRIC PHENO WHICH FIND THEIR WAY INTO THE NATURAL WATER ENVIRONMENT AS A RESULT OF COAL DEVELOPMENT ACTIVITIES, PARTICULARLY STRIP MINING AND COAL GASIFICATION. THE SPECIFIC APPROACH INVOLVES THE DEVELOPMENT OF A MICROCOMPUTER-BASED ELECTROCHEMICAL DETECTOR FOR ANALYSIS OF EFFLUENTS FROM A HIGH PERFORMANCE LIQUID CHROMATOGRAPH (HPLC). REVERSE-PHASE HPLC TECHNIQUES FOR THE SEPARATION OF PHENOLIC COMPOUNDS FROM NATURAL WATER SAMPLES WILL BE DEVELOPED EMPLOYING EFFLUENTS CONSISTENT WITH ELECTROCHEMICAL DETECTION. THE DETECTOR WILL EMPLOY A MICROCOMPUTER FOR CONTROL AND REAL-TIME OPTIMIZATION OF THE ELECTROD POTENTIAL SO AS TO PRODUCE THE MAXIMUM DETECTOR SIGNAL. THE FLEXIBILITY AFFORDED BY COMPUTER CONTROL OF ELECTRODE POTENTIAL WILL ALSO PERMIT EVALUATION OF THE ANALYTICAL ADVANTAGES OF A VARIETY OF TIME DEPENDENT POTENTIAL WAVEFORMS APPLIED TO THE DETECTOR ELECTRODES. THE PERFORMANCE OF THIS "SMART" ELECTROCHEMICAL DETECTOR (SED) WILL BE COMPARED WITH THE MORE CONVENTIONAL UV ADSORPTION DETECTOR. THE ANALYSIS SYSTEM (SED-

HPLC) THUS DEVELOPED WILL BE APPLIED TO THE STUDY OF PHENOLIC COMPOUNDS IN NORTH DAKOTA GROUND AND SURFACE WATERS AND IN THE GASIFICATION WASTEWATER FROM A LURGI PLANT. THE TECHNIQUE WILL ALSO BE APPLIED TO A LABORATORY INVESTIGATION OF THE EXTENT TO WHICH PHENOLICS ARE EXTRACTED BY WATER FROM LIGNITE COALS.

00001601

PROJECT TITLE
EFFECT OF SYNFUELS PROCESS WATERS ON INDICATOR BACTERIA
SOURCE NUMBER
PL-91487
INVESTIGATOR(S)
J. C. ADAMS
RESEARCH INSTITUTION
UNIV. OF WYOMING
DEPT. OF MICROBIOLOGY AND VETERINARY MEDICINE
LARAMIE, WY 82071
PRIMARY SPONSOR
U. S. DEPT. OF ENERGY
LARAMIE ENERGY TECH. CENTER
LARAMIE, WY 82071
PRIMARY FUNDING AMOUNT
$5,000
TIME FRAME
MAY 1979 TO SEPTEMBER 1980
LOCATION
WY
ABSTRACT

THE OBJECTIVE OF THIS RESEARCH IS TO DETERMINE THE EFFECT OF VARIOUS SYNFUEL PROCESS WATERS UPON REPRESENTATIVES OF THE FOLLOWING GROUPS OF BACTERIAL INDICATORS OF HEALTH HAZARDS: TOTAL COLIFORMS, FECAL COLIFORMS, AND FECAL STREPTOCOCCI. THIS WILL HELP ANSWER SEVERAL QUESTIONS THAT COULD BE RAISED IF PROCESS WATERS ARE ALLOWED TO MIX WITH NATURAL/RECEIVING WATERS SOME OF THESE QUESTIONS ARE: (1) WILL THE PROCESS WATERS KILL OR DAMAGE THE SELECTED BACTERIAL INDICATORS; (2) WILL THE DEATH OR DAMAGE BE DEPENDENT UPON THE CONCENTRATION OF THE PROCESS WATERS IN THE RECEIVING WATERS; AND (3) FINALLY, WILL THE MIXING OF THE PROCESS WATERS WITH THE RECEIVING WATERS CAUSE ERRORS IN THE INTERPRETATION OF BACTERIOLOGIC DATA.

00001602

PROJECT TITLE
THE SULFUR CYCLE AND COAL MINING IN MONTANA - POTENTIAL IMPACT ON GROUND AND SURFACE WATERS
SOURCE NUMBER
B-050-MONT
INVESTIGATOR(S)
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RESEARCH INSTITUTION
MONTANA STATE UNIV.
DEPT. OF MICROBIOLOGY
BOZEMAN, MT 59715
PRIMARY SPONSOR
U. S. DEPT. OF INTERIOR
OFFICE OF WATER RESEARCH & TECH.
18TH & C STREETS N.W.
WASHINGTON, DC 20240
PRIMARY FUNDING AMOUNT
$9,965
TIME FRAME
OCTOBER 1, 1979 TO SEPT. 30, 1981
LOCATION
MT
ABSTRACT

WITH THE INCREASING LEVEL OF COAL STRIPMINING IN MONTANA IT IS NECESSARY TO UNDERSTAND THE POSSIBLE ADVERSE EFFECTS THESE ACTIVITIES COULD HAVE ON SURROUNDING AQUATIC ENVIRONMENTS. SULFUR CYCLE BACTERIA CAN HAVE IMPORTANT IMPACTS ON GROUND AND SURFACE WATER QUALITY, ESPECIALLY WHEN CONNECTED WITH MINING SITUATIONS. WE PROPOSE A COMPREHENSIVE STUDY OF SULFUR CYCLING ACTIVITIES AT MONTANA COAL STRIP MINES TO BETTER UNDERSTAND CURRENT AND POTENTIAL FUTURE IMPACTS OF MINING ON LOCAL WATER QUALITY. THE POTENTIAL FOR ACID PRODUCTION AND METAL SOLUBILIZATION WILL BE STUDIED BY ISOLATING AND ENUMERATING ACID PRODUCING THIOBACILLI AND BY INCUBATING ISOLATES WITH COAL SAMPLES TO CHECK FOR ACID PRODUCTION AND METAL SOLUBILIZATION. HARMFUL BACTERIAL HYDROGEN SULFIDE FORMATION IN GROUNDWATERS AND BENEFICIAL HYDROGREN SULFIDE FORMATION IN MINE SETTLING PONDS WILL BE QUANTIFIED THROUGH THE USE OF RADIOISOTOPE TECHNIQUES. LIMITING NUTRIENTS WILL BE DETERMINED TO ASSIST IN EVALUATING METHODS FOR CONTROL OF BACTERIAL HYDROGEN SULFIDE FORMATION. SEE ERIS PROJECT NO. 00001377 (VOL. 4, NO. 1) FOR A RELATED PROJECT.

00001603

PROJECT TITLE
GEOLOGIC AND GEOCHEMICAL CONTROLS ON THE CHEMICAL EVOLUTION OF SUBSURFACE WATER IN SURFACE COAL MINE SPOILS
SOURCE NUMBER
J0275010
INVESTIGATOR(S)
GERALD GROENEWOLD / ALAN KEHEW
RESEARCH INSTITUTION
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UNIVERSITY STATION
GRAND FORKS, ND 58202
PRIMARY SPONSOR
U. S. BUREAU OF MINES

DENVER MINING RESEARCH CENTER, ENVIRONMENTAL ACTIVITIES GROUP
BLDG. 20, DENVER FEDERAL CENTER
DENVER, CO 80225

PRIMARY FUNDING AMOUNT
$107,000

TIME FRAME
OCTOBER 1, 1979 TO SEPT. 30, 1981

LOCATION
ND - OLIVER CO., MCLEAN CO., MERCER CO., DUNN CO., CENTER MINE, INDIAN HEAD MINE, FALKIRK MINE

ABSTRACT

EXISTING GROUNDWATER INSTRUMENTATION AT SEVERAL PROPOSED AND ACTIVE MINING SITES IN WESTERN NORTH DAKOTA HAS ALLOWED FOR THE DEVELOPMENT OF A CONCEPTUAL MODEL FOR THE CHEMICAL EVOLUTION OF GROUNDWATER IN UNDISTURBED LANDSCAPES. THIS MODEL FOCUSES ON SEVERAL KEY CHEMICAL PROCESSES WHICH ARE RESPONSIBLE FOR EXISTING GROUNDWATER CHEMICAL CHARACTERISTICS. CRITICAL FACTOR ARE TEXTURAL AND MINERALOGICAL VARIABLES IN THE MATERIALS. THESE SAME GEOCHEMICAL PROCESSES ARE OPERATING IN DISTURBED (POSTMINING) LANDSCAPES. THE LONG-TERM EFFECTS UPON GROUNDWATE QUALITY ARE NOT PRESENTLY KNOWN. THE OBJECTIVES OF THIS PROJEC ARE: 1) TO CHARACTERIZE THE QUALITY OF GROUNDWATER IN GEOLOGICALLY AND GEOCHEMICALLY DISTINCT POSTMINING LANDSCAPES, 2) TO DETERMINE THE MINERALOGY OF THE MATERIAL MATRIX THROUGH WHICH GROUNDWATER FLOWS IN THOSE LANDSCAPES, 3) TO RELATE THIS MINERALOGY TO THE CHEMISTRY OF THE GROUNDWATER IN THOSE LANDSCAPES, 4) TO DEFINE THE MINERALS AND CHEMICAL REACTIONS THAT CONTROL THE CHEMICAL EVOLUTION OF GROUNDWATER IN POSTMINING LANDSCAPES AND THEREBY GAIN THE CAPABILITY TO DESIGN POSTMINING LANDSCAPE IN WHICH GROUNDWATER QUALITY CAN BE PREDICTED AND GUARANTEED. ACTIVITIES INCLUDE THE SAMPLING OF PIEZOMETERS IN SPOILS AND ASSOCIATED MATERIALS AT THE CENTER, INDIAN HEAD, AND FALKIRK MINES IN WESTERN NORTH DAKOTA. GROUNDWATER SAMPLES FROM THE SITES ARE BEING ANALYZED ON A BI-ANNUAL BASIS. IN CONJUNCTION, SAMPLES OF THE VARIOUS OVERBURDEN MATERIALS ARE BEING ANALYZED UTILIZING X-RAY DIFFRACTION, SCANNING ELECTRON MICROSCOPE WITH PROBE, AND BINOCULAR MICROSCOPE TECHNIQUES. IN ADDITION, LABORATORY WEATHERING EXPERIMENTS ARE BEING RUN UTILIZING VARIU TYPES OF OVERBURDEN MATERIALS.

REPORTS AND PUBLICATIONS
POTENTIAL HYDROCHEMICAL IMPACTS OF SURFACE MINING IN THE NORTHE GREAT PLAINS / GROENEWOLD, REHM, CHERRY, KOOB, MORAN, PALMER, PETERSON / 1980 / PROC. SYMP. OF SURFACE MINING HYDROLOGY, SEDIMENTOLOGY AND RECLAMATION, LEXINGTON, KY

PUBLICATIONS ADDRESS
NORTH DAKOTA GEOLOGICAL SURVEY, GRAND FORKS, ND 58202

00001604

PROJECT TITLE
SURFACE WATER HYDROLOGY RELATED TO THE FORT UNION COAL REGION OF EASTERN MONTANA

SOURCE NUMBER
MT-80-073

INVESTIGATOR(S)
ROBERT J. OMANG

RESEARCH INSTITUTION
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WATER RESOURCES DIVISION
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FEDERAL BUILDING
HELENA, MT 59626

PRIMARY SPONSOR
U. S. GEOLOGICAL SURVEY
COAL HYDROLOGY
BLDG. 25, DENVER FEDERAL CENTER
DENVER, CO.

SECONDARY SPONSOR
U. S. BUREAU OF LAND MANAGEMENT

PRIMARY FUNDING AMOUNT
$52,800

SECONDARY FUNDING AMOUNT
$112,500

TIME FRAME
OCTOBER 1, 1979 TO SEPT. 30, 1982

LOCATION
MT - FORT UNION COAL REGION

ABSTRACT

PROBLEM: IT IS IMPOSSIBLE TO COLLECT LONG-TERM RECORDS AT EVERY POTENTIAL COAL LEASE SITE IN MONTANA. THUS, METHODS MUST BE DEVELOPED AND APPLIED TO ESTIMATE RUNOFF CHARACTERISTICS FROM INDIRECT MEASUREMENTS. CHANNEL GEOMETRY, BASIN CHARACTERISTICS, REGIONAL RELATIONSHIPS, AND OTHER TECHNIQUES WOULD BE USED TO ESTIMATE RUNOFF FROM UNGAGED WATERSHEDS. OBJECTIVES: TO DEFINE RUNOFF CHARACTERISTICS FOR UNGAGED AREAS IN THE FORT UNION COAL REGION. DETERMINE OR REFINE EQUATIONS FOR RELATING BASIN CHARACTERISTICS TO FLOW CHARACTERISTICS. DETERMINE RUNOFF, PEAK FLOW, AND FLOOD BOUNDARIES FOR SELECTED SITES IN SOUTHEASTERN MONTANA. APPROACH: USE INDIRECT METHODS TO ESTIMATE RUNOFF FROM UNGAGED SITES. DELINEATE FLOOD BOUNDARIES FOR SELECTED AREAS AS NEEDED. REFINE REGIONAL EQUATIONS USING BASIN CHARACTERISTICS AND LATEST STREAMFLOW RECORDS.

00001605

PROJECT TITLE
WATER RESOURCES OF THE EAST BIG DRY RESOURCE AREA, EAST-CENTRAL MONTANA

SOURCE NUMBER
MT-80-076

INVESTIGATOR(S)
STEVEN E. SLAGLE

RESEARCH INSTITUTION

U. S. GEOLOGICAL SURVEY
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PRIMARY SPONSOR

U. S. GEOLOGICAL SURVEY
COAL HYDROLOGY
BLDG. 25, DENVER FEDERAL CENTER
DENVER, CO

PRIMARY FUNDING AMOUNT

$139,600

TIME FRAME

OCTOBER 1, 1979 TO SEPT. 30, 1981

LOCATION

MT - RICHLAND CO., DAWSON CO., MCCONE CO., PRAIRIE CO.

ABSTRACT

PROBLEM: THE NATION'S ENERGY CRISIS IS STEADILY INCREASING THE INTEREST IN DEVELOPMENT OF COAL AND LIGNITE DEPOSITS IN THE FORT UNION COAL REGION OF EASTERN MONTANA. THE POTENTIA IMPACTS OF MINING, RECLAMATION, TRANSPORTATION, OR CONVERSION OF THIS RESOURCE ON THE HYDROLOGIC SYSTEM RAISES CONCERN ABOUT THE HYDROLOGIC CONSEQUENCES OF DEVELOPMENT. THE NEED FOR REGIONAL FRAMEWORK INFORMATION ON THE SHALLOW AQUIFERS IS OBVIOUS. ALSO BASELINE HYDROLOGIC DATA IS NEEDED IF FUTURE IMPACTS ARE TO BE MONITORED. OBJECTIVES: TO DEFINE BASE LINE GROUNDWATER CONDITIONS, ESTABLISH A DATA BASE OF EXISTING HYDRAULIC AND WATER QUALITY CONDITIONS, DEVELOP A NETWORK TO MONITOR FUTURE CHANGES, AND EVALUATE POSSIBLE IMPACTS OF MINING, RECLAMATION, AND RELATED ACTIVITIES. APPROACH: AVAILABLE HYDROLOGIC DATA WILL BE COMPILED. A WELL INVENTORY WILL BE CONDUCTED TO ACQUIRE DATA IN AREAS OF POOR COVERAGE. A MONITORING NETWORK WILL BE DEVELOPED TO OBTAIN RECORDS OF LONG-TERM HYDROLOGIC CHANGES. MAPS SHOWING FRAMEWORK, WATER QUALITY, POTENTIOMETRIC SURFACES, AND OTHER FEATURES WILL BE PREPARED.

00001606

PROJECT TITLE

DISSOLVED SOLIDS MODEL OF THE TONGUE RIVER, MONTANA

SOURCE NUMBER

MT-80-071

INVESTIGATOR(S)

PAUL F. WOODS

RESEARCH INSTITUTION

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PRIMARY SPONSOR

U. S. GEOLOGICAL SURVEY
COAL HYDROLOGY
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DENVER, CO

SECONDARY SPONSOR

U. S. BUREAU OF LAND MANAGEMENT

PRIMARY FUNDING AMOUNT

$50,400

SECONDARY FUNDING AMOUNT

$36,300

TIME FRAME

OCTOBER 1, 1979 TO SEPT. 30, 1981

LOCATION

MT - BIG HORN CO., ROSEBUD CO., CUSTER CO.

ABSTRACT

PROBLEM: THE BLM IS CONCERNED WITH THE POTENTIAL FOR DEGRADATION OF WATER QUALITY ON THE TONGUE RIVER CAUSED BY INCREASED INPUT OF DISSOLVED SOLIDS DERIVED FROM PRESENT AND PROPOSED COAL STRIP MINING. OBJECTIVES: TO DEVELOP A DIGITAL MODEL CAPABLE OF SIMULATING SPECIAL AND TEMPORAL VARIATIONS IN DISSOLVED SOLIDS IN THE TONGUE RIVER UNDER VARIOUS SCENARIOS FOR COAL DEVELOPMENT. APPROACH: A MASS BALANCE MODEL CAPABLE OF SIMULATING INFLOWS TO THE STREAM WILL BE USED TO MODEL DISSOLVED SOLIDS IN THE TONGUE RIVER.

00001607

PROJECT TITLE

HYDROLOGIC RECONNAISSANCE TO DETERMINE RECLAMATION POTENTIAL AT SELECTED EMRIA SITES

SOURCE NUMBER

MT-78-066

INVESTIGATOR(S)

NEAL E. MCCLYMONDS / MICHAEL CANNON

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PRIMARY SPONSOR

U. S. BUREAU OF LAND MANAGEMENT

PRIMARY FUNDING AMOUNT

$380,930

TIME FRAME

OCTOBER 1977 TO SEPTEMBER 1992

LOCATION

MT - FORT UNION COAL REGION

ABSTRACT

PROBLEM: THE BUREAU OF LAND MANAGEMENT MUST EVALUATE TRACTS OF LAND FOR POTENTIAL COAL LEASES. ONE ASPECT OF THE EVALUATION IS ASSESSMENT OF HYDROLOGIC CONDITIONS AND POTENTIAL IMPACTS

OF MINING ON GROUND AND SURFACE WATER SYSTEMS. OBJECTIVES: TO DETERMINE HYDROLOGIC DATA NEEDS AT VARIOUS TRACTS WHICH HAVE HIGH POTENTIAL FOR COAL DEVELOPMENT. INSTALL AND TEST OBSERVATION WELLS. MONITOR STREAMFLOW. COLLECT WATER SAMPLES. AND PREPARE REPORTS DESCRIBING THE HYDROLOGIC CONDITIONS IN EAC SELECTED TRACT. APPROACH: EVALUATE EXISTING INFORMATION. DESIGN TEST DRILLING PROGRAM. COLLECT WATER SAMPLES. MONITOR WATER LEVEL FLUCTUATIONS. MAP FLOOD BOUNDARIES. AND PREPARE REPORTS FOR SELECTED AREAS.

00001608

PROJECT TITLE
STREAM RESPONSE MODEL OF PRAIRIE DOG CREEK WATERSHED. SOUTHEASTERN MONTANA
SOURCE NUMBER
MT-78-065
INVESTIGATOR(S)
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PRIMARY SPONSOR
U. S. BUREAU OF LAND MANAGEMENT
DENVER FEDERAL CENTER
DENVER. CO
PRIMARY FUNDING AMOUNT
$218.200
TIME FRAME
SEPTEMBER 1978 TO SEPTEMBER 1981
LOCATION
MT - ROSEBUD CO.
ABSTRACT
PROBLEM: A NEED EXISTS FOR A TOOL TO EVALUATE THE EFFECTS OF MINING ON STREAMFLOW. IN ADDITION. METHODS ARE NEEDED TO ESTIMATE RUNOFF CHARACTERISTICS FOR UNGAGED WATERSHEDS. OBJECTIVE: A MODEL CAPABLE OF SIMULATING RUNOFF FROM SMALL WATERSHEDS WILL BE DEVELOPED AND CALIBRATED FOR THE PRAIRIE DOG CREEK WATERSHED. THE MODEL WILL BE BASED ON PHYSICAL PARAMETER TO ENABLE TRANSFER TO OTHER AREAS. THE CALIBRATED MODEL WILL BE USED TO SIMULATE THE EFFECTS OF MINING ON RUNOFF. APPROACH: A DATA COLLECTION NETWORK CONSISTING OF SOIL MONITOR TO MEASURE TEMPERATURE AND SOIL MOISTURE; CLIMATIC SENSORS TO MEASURE AIR TEMPERATURE. WIND SPEED AND DIRECTION. SOLAR RADIATION. AND HUMIDITY; SNOW COURSES TO MONITOR DEPTH AND MOISTURE CONTENT; PRECIPITATION NETS TO MEASURE RATE AND AMOUNT OF RAINFALL; GROUNDWATER OBSERVATION WELLS TO MONITOR WATER LEVEL FLUCTUATIONS; AND STREAMFLOW STATIONS TO MONITOR QUANTITY AND QUALITY OF RUNOFF WILL BE INSTALLED. THE DATA WILL BE USED TO DRIVE A DISTRIBUTED-PARAMETER MODEL TO SIMULATE RUNOFF. REFINEMENTS TO THE MODEL TO ALLOW CONSIDERATION OF RUNOFF FROM FROZEN SOILS. EFFECTS OF STOCKPONDS. AND OTHER ASPECTS OF HYDROLOGY WILL BE MADE.

00001609

PROJECT TITLE
STREAMFLOW CHARACTERISTICS RELATED TO CHANNEL GEOMETRY IN EPHEMERAL STREAMS
SOURCE NUMBER
MT-80-070
INVESTIGATOR(S)
ROBERT J. OMANG
RESEARCH INSTITUTION
U. S. GEOLOGICAL SURVEY
WATER RESOURCES DIVISION
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FEDERAL BUILDING
HELENA. MT 59626
PRIMARY SPONSOR
U. S. BUREAU OF LAND MANAGEMENT
PRIMARY FUNDING AMOUNT
$38.500
TIME FRAME
MARCH 1. 1979 TO SEPT. 30. 1981
LOCATION
MT - FORT UNION COAL REGION
ABSTRACT
PROBLEM: A NEED FOR METHODS TO ESTIMATE STREAMFLOW CHARACTERISTICS FOR UNGAGED SITES HAS LONG EXISTED. PEAK FLOW AND MEAN ANNUAL FLOW INFORMATION IS ESSENTIAL TO PLANNING AND DESIGN ACTIVITIES. OBJECTIVES: COLLECT CHANNEL GEOMETRY INFORMATION AT GAGING STATIONS WITH LESS THAN 25 YEARS OF RECORD TO EVALUATE THE TECHNIQUE IN THE PLAINS ENVIRONMENT OF EASTERN MONTANA. APPROACH: WIDTH AND DEPTH MEASUREMENTS WILL BE OBTAINED AT SELECTED SITES WITH LESS THAN 25 YEARS OF RECORD. INFORMATION WILL BE USED TO DEVELOP REGRESSION EQUATIONS WHICH WILL RELATE THE VARIABLES TO STREAMFLOW CHARACTERISTICS.

00001610

PROJECT TITLE
GROUNDWATER CHEMISTRY IN THE VICINITY OF MINE SPOILS. DECKER AND BIG SKY MINES. MONTANA
SOURCE NUMBER
MT-80-075
INVESTIGATOR(S)
ROBERT DAVIS / WAYNE VAN VOAST
RESEARCH INSTITUTION
U. S. GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

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COOPERATOR
MONTANA BUREAU OF MINES AND GEOLOGY
BILLINGS, MT
PRIMARY SPONSOR
U. S. GEOLOGICAL SURVEY
COAL HYDROLOGY
BLDG. 25, DENVER FEDERAL CENTER
DENVER, CO.
SECONDARY SPONSOR
U. S. BUREAU OF LAND MANAGEMENT
PRIMARY FUNDING AMOUNT
$324,760
SECONDARY FUNDING AMOUNT
$211,090
TIME FRAME
OCTOBER 1, 1980 TO SEPT. 30, 1982
LOCATION
MT - ROSEBUD CO., BIG HORN CO.
ABSTRACT

PROBLEM: THE POTENTIAL IMPACTS OF MINING AND RECLAMATION ON THE HYDROLOGIC SYSTEM ARE AN IMPORTANT FACTOR IN APPROVING MINE PLANS, LEASING FEDERAL COAL, AND SPECIFYING MITIGATING MEASURES. THE EFFECT OF MINE SPOILS ON THE QUALITY OF GROUNDWATER IS ONLY POORLY UNDERSTOOD. IT IS IMPERATIVE THAT STUDIES BE UNDERTAKEN TO REFINE OUR ABILITY TO PREDICT WATER QUALITY CHANGES THAT MAY RESULT FROM MINING AND RECLAMATION. OBJECTIVE: TO DOCUMENT GROUNDWATER QUALITY IN AND AROUND THE DECKER AND BIG SKY MINE SPOILS AND DETERMINE SPECIAL AND TEMPORAL CHANGES IN WATER QUALITY. TO TEST VARIOUS METHODOLOGIES DESIGNED TO PREDICT WATER QUALITY CHANGES. TO PREDICT THE OFF-SITE EFFECTS OF MINE SPOIL WATER ON SURROUNDING HYDROLOGIC SYSTEMS. APPROACH: COMPILE EXISTING HYDROLOGIC DATA, DEVELOP FLOW AND QUALITY MODELS, DESIGN AND OPERATE DATA COLLECTION NETWORKS, AND DEVELOP AND CALIBRATE SOLUTE-TRANSPORT MODELS TO PREDICT MOVEMENT OF MINE SPOIL WATER.

00001611

PROJECT TITLE
REGIONAL ANALYSIS OF SURFACE WATER QUALITY IN THE FORT UNION COAL REGION, MONTANA
SOURCE NUMBER
MT-80-072
INVESTIGATOR(S)
ROGER KNAPTON
RESEARCH INSTITUTION
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WATER RESOURCES DIVISION
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COAL HYDROLOGY
BLDG. 25, DENVER FEDERAL CENTER
DENVER, CO
SECONDARY SPONSOR
U. S. BUREAU OF LAND MANAGEMENT
PRIMARY FUNDING AMOUNT
$61,200
SECONDARY FUNDING AMOUNT
$51,800
TIME FRAME
OCTOBER 1, 1979 TO SEPT. 30, 1982
LOCATION
MT - FORT UNION COAL REGION
ABSTRACT

PROBLEM: VOLUMINOUS INFORMATION IS BEING COLLECTED ON THE SURFACE WATER QUALITY IN THE FORT UNION COAL REGIONS. IN RAW FORM, THE INFORMATION IS OF LITTLE USE TO NON-TECHNICAL LAND MANAGERS. THE INFORMATION MUST BE ANALYZED AND REPORTED TO LAY-READER TERMS TO BE USEFUL. OBJECTIVES: TO PREPARE INTERPRETIVE REPORTS DESCRIBING WATER QUALITY CONDITIONS IN THE FORT UNION COAL REGION IN LAY-READER TERMS. ALSO, TO UTILIZE THE LARGE MASS OF WATER QUALITY DATA TO UNDERSTAND FACTORS CONTROLLING WATER QUALITY IN STREAMS DRAINING THE POTENTIAL COAL LEASE AREAS. APPROACH: DEVELOP STATISTICAL SUMMARIES, REGRESSION EQUATIONS, AND ILLUSTRATIVE TECHNIQUES TO DESCRIBE CURRENT WATER QUALITY CONDITIONS.

REPORTS AND PUBLICATIONS
WATER QUALITY OF SELECTED STREAMS IN THE COAL AREA OF SOUTHEASTERN MONTANA: U. S. GEOLOGICAL SURVEY WATER RESOURCES INVESTIGATIONS 77-80 / KNAPTON, J. R. AND MCKINLEY, P. W. / 1977
WATER QUALITY OF SELECTED STREAMS IN THE COAL AREA OF EAST-CENTRAL MONTANA: U. S. GEOLOGICAL SURVEY WATER RESOURCES INVESTIGATIONS 78-142 / MCKINLEY, R. W. / 1979
PUBLICATIONS ADDRESS
U. S. GEOLOGICAL SURVEY

00001612

PROJECT TITLE
TESTING FOR SO2 AT OLD IN-SITU OIL SHALE SITES
SOURCE NUMBER
88268-896
INVESTIGATOR(S)
R. POULSON
RESEARCH INSTITUTION
U. S. DEPT. OF ENERGY
LARAMIE ENERGY RESEARCH CENTER
UNIVERSITY STATION, P. O. BOX 3395
LARAMIE, WY 82070
PRIMARY SPONSOR
U. S. EPA
INDUSTRIAL ENVIRONMENTAL RESEARCH LAB.
CINCINNATI, OH
PRIMARY FUNDING AMOUNT
NOT AVAILABLE
TIME FRAME
NOVEMBER 1978 TO SEPTEMBER 1979
LOCATION
WY - PICEANCE BASIN
ABSTRACT
THIS EFFORT WILL SURVEY SO2 AND HYDROCARBON EMISSIONS FROM OLD OIL SHALE RETORTING OPERATIONS (EMPHASIS IN-SITU) MOSTLY IN THE PICEANCE BASIN. THE PROGRAM ENTAILS FIELD SAMPLING OF SOIL AND AIR AT FIVE SITES OF OIL SHALE IN-SITU RETORTS AND AT ONE LOCATION AWAY FROM ANY OIL SHALE WORK. THE LATTER LOCATION WILL ACT AS A CONTROL. SOILS WILL BE TESTED FOR SO2, TOTAL ORGANICS, HYDROCARBONS, PH AND SOIL ATMOSPHERE SO2. AIR SAMPLE WILL BE TESTED FOR SO2 AND HYDROCARBONS.

00001613

PROJECT TITLE
FINE PARTICULATE MONITORING IN THE WESTERN ENERGY RESOURCE DEVELOPMENT AREA
INVESTIGATOR(S)
T. CAHILL
RESEARCH INSTITUTION
UNIV. OF CALIFORNIA
DEPT. OF PHYSICS
DAVIS, CA 95616
PRIMARY SPONSOR
U. S. EPA
OFFICE OF RESEARCH & DEV.
P. O. BOX 15027
LAS VEGAS, NV 89114
PRIMARY FUNDING AMOUNT
$423,800
TIME FRAME
JANUARY 1979 TO JANUARY 1981
LOCATION
AZ - CO - NM - UT - WY - ND - MT - SD
ABSTRACT
OBJECTIVE: ESTABLISH A BASELINE OF AIR AMBIENT FINE PARTICULAT DATA IN THE WESTERN ENERGY RESOURCE DEVELOPMENT AREA.
APPROACH: A FORTY-STATION FINE PARTICULATE SAMPLING NETWORK WILL BE DEPLOYED OVER THE STATES OF ARIZONA, NEW MEXICO, COLORADO, UTAH, WYOMING, NORTH DAKOTA, MONTANA, AND SOUTH DAKOTA. THE MASS AND ELEMENTAL COMPOSITION OF AEROSOLS IN TWO SIZE RANGES (LESS THAN 2.5 MICRON, LESS THAN 15 MICRON) WILL BE DETERMINED ON THE TWICE-WEEKLY SAMPLES AT EACH STATION. CORRELATIONS WILL BE DEVELOPED WITH METEOROLOGICAL DATA AND OTHER AIR QUALITY MEASUREMENTS (E.G., VISIBILITY).

00001614

PROJECT TITLE
INVESTIGATION OF THE BIOENVIRONMENTAL IMPACT OF FOSSIL FUEL-FIRED PLANTS IN THE FORT UNION BASIN
SOURCE NUMBER
M831-007
INVESTIGATOR(S)
C. C. GORDON
RESEARCH INSTITUTION
UNIV. OF MONTANA
DEPT. OF BOTANY
770 EDDY STREET
MISSOULA, MT 59801
PRIMARY SPONSOR
U. S. EPA
ENVIRONMENTAL RESEARCH LAB.
CORVALLIS, OR
PRIMARY FUNDING AMOUNT
1979: $115,000
TIME FRAME
OCTOBER 1977 TO DECEMBER 1980
LOCATION
MT
ABSTRACT
WITHIN A ZONAL AIR POLLUTION RESEARCH SITE, THE EFFECTS OF SULFUR AND FLUORIDE ON SELECTED PLANTS, ANIMALS, AND INSECTS WILL BE DETERMINED. A REPORT THAT HELPS DEVELOP THE CAPACITY TO PREDICT THE ECOLOGICAL IMPACTS OF COAL-FIRED POWER PLANT EMISSIONS BEFORE DAMAGE OCCURS WILL BE WRITTEN. EPA CONTRACT NO. R805610-01.

00001615

PROJECT TITLE
THE ROLE OF SELENIUM IN PLANNING FOR FISHERIES MANAGEMENT IN METAL AND METALLOID POLLUTED WATERS
SOURCE NUMBER
A-075-SDAK
INVESTIGATOR(S)
J. F. HEISINGER
RESEARCH INSTITUTION
SOUTH DAKOTA STATE UNIV.
WATER RESOURCES INST.
BROOKINGS, SD 57006
PRIMARY SPONSOR
U. S. DEPT. OF INTERIOR
OFFICE OF WATER RESEARCH & TECH.
18TH & C STREETS N.W.
WASHINGTON, DC 20240
PRIMARY FUNDING AMOUNT
1980: $13,000
TIME FRAME
OCTOBER 1979 TO SEPTEMBER 1981
LOCATION
SD
ABSTRACT

MERCURY, ARSENIC AND SELENIUM RICH MINE TAILINGS LINE MANY WESTERN SOUTH DAKOTA STREAMS EVEN THOUGH EFFORTS HAVE BEEN MADE IN THE ABATEMENT OF SILTATION DUE TO THE TAILINGS. FISH PROPAGATION AND CONSUMPTION OF FISH FROM THE STREAMS HAS BEEN CURTAILED. HOWEVER, TOXIC SUBSTANCES OFTEN HAVE ANTAGONISTIC ACTIONS. IT IS PERHAPS POSSIBLE THAT THE INTERACTIONS BETWEEN THESE SUBSTANCES WILL ALLOW FOR LESS SEVERE PROJECTIONS FOR FISHERIES MANAGEMENT ALONG THESE STREAMS. THIS TAKES ON NATIONAL SIGNIFICANCE SINCE THESE ELEMENTS, ALONG WITH CADMIUM, ARE IMPORTANT COMMON POLLUTANTS IN THE FOSSIL FUELS, NAMELY COA WHICH HAS INCREASED UTILIZATION AS A SOURCE OF ENERGY. TOXICOLOGISTS HAVE RECENTLY DEMONSTRATED THAT SELENIUM PROTECTS AGAINST MERCURY AND ARSENIC AGAINST SELENIUM, AT LEAST IN MAMMALS AND BIRDS. PLANNING FOR WISE STREAM MANAGEMENT POLICY IN METAL AND METALLOID POLLUTED WATER CAN BE MADE IF SUCH INTERACTIONS ARE KNOWN. THIS RESEARCH IS DESIGNED TO DETERMINE THE LC50 VALUES OF INORGANIC ARSENIC, CADMIUM, MERCURY AND SELENIUM IN THE HIGHLY SENSITIVE EMBRYONIC AND LARVAL STAGES OF RICEFISH. IT WILL ALSO OBSERVE ANY CARCINOGENIC OR TETATOGENIC EFFECTS OF THE FOUR TOXIC ELEMENTS AS WELL AS ASCERTAIN IF ANY PROTECTIVE INTERACTIONS OCCUR IN MIXTURES OF THESE ELEMENTS.

00001616

PROJECT TITLE
PARAMECIUM TETRAURELIA: PRESCREEN FOR HAZARDOUS AGENTS
SOURCE NUMBER
AC02-77EV04477
INVESTIGATOR(S)
J. SMITH-SONNEBORN
RESEARCH INSTITUTION
UNIV. OF WYOMING
DEPT. OF ZOOLOGY
LARAMIE, WY 82071
PRIMARY SPONSOR
U. S. DEPT. OF ENERGY
CHICAGO OPERATIONS OFFICE
CHICAGO, IL
PRIMARY FUNDING AMOUNT
NOT AVAILABLE
TIME FRAME
FEBRUARY 1980 TO JANUARY 1981
LOCATION
WY
ABSTRACT

THE CILIATED PROTOZOAN, PARAMECIUM, IS BEING USED AS A RAPID PRESCREEN FOR MUTAGENIC/CARCINOGENIC HAZARDOUS AGENTS AND THE RESULTS ARE COMPARED TO THE AMES ASSAY. THE FRACTION OF LETHALS AND DETRIMENTALS AMONG THE PROGENY OF TREATED PARENT CELLS IS USED AS AN INDEX OF MUTAGENIC AND THEREFORE POTENTIAL CARCINOGENIC AGENTS. THE PHOTODYNAMIC ASSAY, WHICH DETECTS CHEMICALS THAT SENSITIZE ORGANISMS TO LIGHT-MEDIATED LETHALITY, HAS ALSO BEEN INCORPORATED INTO OUR BIOASSAY SYSTEM. ANY CORRELATION BETWEEN PHOTODYNAMICALLY ACTIVE AGENTS AND PHOTOMUTAGENS WILL BE DETERMINED. SAMPLES FROM ADVANCED FOSSIL FUEL PROCESS WATERS, SUPPLIED BY THE LARAMIE ENERGY TECHNOLOGY CENTE ARE BEING BIOASSAYED. COAL FLY ASH SAMPLES WILL ALSO BE ASSAYED FOR THEIR EFFECTS IN THESE PHAGOCYTIC PARAMECIA. THE RESULTS OF THE PROPOSED WORK WITH OIL SHALE AND FLY ASH SAMPLES WILL BE INTEGRATED WITH ABUNDANT INFORMATION EITHER ALREADY AVAILABLE OR BEING ANALYZED TO PROVIDE A MORE COMPREHENSIVE EVALUATION OF POTENTIAL HUMAN HEALTH RISKS ASSOCIATED WITH ENERGY SOURCES USED IN DEVELOPING TECHNOLOGIES. THE MUTAGENIC AND PHOTODYNAMIC ASSAYS HAVE BEEN USED AS A PRESCREEN FOR HAZARDOUS CHEMICALS USING THE EUKARYOTIC PROTOZOAN PARAMECIUM. CELLS ARE TREATED WITH THE AGENT, STARVED TO INDUCE THE SELF-FERTILIZATION PROCESS OF AUTOGAMY AND THE OFFSPRING EXAMINED FO INDUCED LETHAL AND DETRIMENTAL DAMAGE. THE FRACTION OF VIGOROU CELLS WHICH SURVIVE IS A MEASURE OF THE MUTAGENIC POTENTIAL OF THE AGENT AT THAT DOSE. ALL KNOWN CARCINOGENS TESTED WERE MUTAGENIC. BENZO(A)PYRENE, WHEN ACTIVATED BY THE AMES S-9 MICROSOMAL FRACTION, WAS MUTAGENIC. IN CONFIRMATION OF THE WOR OF OTHERS, THE PHOTODYNAMIC ASSAY PREFERENTIALLY DETECTS CARCINOGENIC POLYCYCLIC AROMATICS AND COULD BE USEFUL IN ASSAY OF ADVANCED FOSSIL FUEL PROCESS WATERS.

00001617

PROJECT TITLE
EFFECTS OF COAL MINING ON THE ECOLOGY OF SAGE GROUSE ON ARCO COAL COMPANY'S COAL CREEK MINE
INVESTIGATOR(S)
MARK S. BOYCE / JAMES TATE, JR. / BONNIE COLENSO /
DENNIS ROTHENMAIER / T. R. SMITH
RESEARCH INSTITUTION
UNIV. OF WYOMING
DEPT. OF ZOOLOGY
LARAMIE, WY 82071
PRIMARY SPONSOR
ARCO COAL COMPANY
P. O. BOX 5300
DENVER, CO 80217
PRIMARY FUNDING AMOUNT
$65,641
TIME FRAME
JULY 7, 1977 TO MAY 31, 1981
LOCATION
WY - CAMPBELL CO.
ABSTRACT

OUR INITIAL OBJECTIVE WAS TO MOVE A SAGE GROUSE STRUTTING GROUND (LEK) TO A NEW SITE WHERE MINING WOULD NOT BE A FUTURE DISTURBANCE. WE SUCCESSFULLY MOVED THE LEK TO A SATELLITE LEK BUT NOT TO THE ARTIFICIAL LEK WHICH WE CREATED. THE MAIN FOCUS OF OUR WORK SINCE THEN HAS BEEN TO CHARACTERIZE THE HABITAT CHARACTERISTICS WHICH ARE IMPORTANT TO GROUSE DURING OTHER TIME OF THE YEAR, WITH PARTICULAR ATTENTION TO HABITAT ATTRIBUTES WHICH MAY BE RESTORED DURING MINE RECLAMATION. WE ARE PRESENTL WORKING ON A MONOGRAPH ON SAGE GROUSE HABITAT ECOLOGY.

REPORTS AND PUBLICATIONS
MULTIVARIATE ANALYSIS OF HABITAT SELECTION BY SAGE GROUSE /
BOYCE, M. S., ROTHENMAIER, D., AND TATE, J. JR. / 1979 /
JUNIOR COLLEGE, WYOMING ACADEMY OF SCIENCE / 11:93-94
RESPONSE OF SAGE GROUSE TO ARTIFICIALLY CREATED DISPLAY GROUND
TATE, J. JR., BOYCE, M. S., SMITH, T. R. / 1979 / PROCEEDINGS
OF MITIGATION SYMPOSIUM PAGES 459-463
A BIBLIOGRAPHY ON THE SAGE GROUSE (CONTROCERCUS UROPHASIANUS) /
BOYCE, M.S., TATE, J. JR. / 1979 / UNIV. OF WYOMING, AGR.
EXP. STATION / SCIENCE MONOGRAPHY NO. 38, 12 PAGES
ROBUST CANONICAL CORRELATION OF SAGE GROUSE HABITAT /
BOYCE, M. S. / 1980 / MULTIVARIATE CONFERENCE - USDA FOREST
SERVICE PUBLICATION
PUBLICATIONS ADDRESS
M. S. BOYCE
UNIV. OF WYOMING, DEPT. OF ZOOLOGY
LARAMIE, WY 82071

00001618

PROJECT TITLE
SEASONAL CYCLES IN BODY COMPOSITION, ORGAN SYSTEM FUNCTION AND ENERGETICS OF GRASSLAND BIRDS NEAR COLSTRIP, MONTANA
SOURCE NUMBER
R805581-02, M625A-036
INVESTIGATOR(S)
M. L. MORTON
RESEARCH INSTITUTION
OCCIDENTAL COLLEGE, GRADUATE SCHOOL
DEPT. OF BIOLOGY
1600 CAMPUS ROAD
LOS ANGELES, CA 90041
PRIMARY SPONSOR
U. S. EPA
OFFICE OF RESEARCH & DEV.
ENVIRONMENTAL RESEARCH LAB.
200 S.W. 35TH STREET
CORVALLIS, OR 97330
PRIMARY FUNDING AMOUNT
1979: $51,400
TIME FRAME
OCTOBER 1977 TO SEPTEMBER 1979
LOCATION
MT - ROSEBUD CO.
ABSTRACT

OBJECTIVE: MEASURE AND PREDICT CHANGES IN POPULATION STRUCTURE AND DYNAMICS OF SELECTED SPECIES OF BIRDS AS A FUNCTION OF ENDOGENOUS CYCLES, EXOGENOUS CYCLES, OR ENVIRONMENTAL FACTORS INCLUDING RELEVANT BIOTIC INTERACTIONS AND PHYSICAL FACTORS SUCH AS AIR POLLUTION.

FINAL OUTPUT: REPORT THAT DEVELOPS THE CAPACITY TO PREDICT THE ECOLOGICAL IMPACTS OF COAL-FIRED POWER PLANT EMISSIONS BEFORE DAMAGE OCCURS. SEE ERIS PROJECT NOS. 00000172 (VOL. 1, NO. 1) AND 00000603 (VOL. 2, NO. 1) FOR RELATED PROJECTS.

00001619

PROJECT TITLE
INVESTIGATION OF THE EFFECTS OF COAL-FIRED POWER PLANT EMISSION ON TISSUE STRUCTURE OF SELECTED BIRD SPECIES - BIRDS AS INDICATORS
SOURCE NUMBER
R805370-02, M625A-021
INVESTIGATOR(S)
M. D. KERN
RESEARCH INSTITUTION
COLLEGE OF WOOSTER, GRADUATE SCHOOL
DEPT. OF BIOLOGY
WOOSTER, OH 44691
PRIMARY SPONSOR
U. S. EPA
OFFICE OF RESEARCH & DEV.
ENVIRONMENTAL RESEARCH LAB.

200 S.W. 35TH STREET
CORVALLIS, OR 97330

PRIMARY FUNDING AMOUNT
1978: $27,000

TIME FRAME
JULY 1977 TO JULY 1980

LOCATION
NATIONWIDE APPLICABILITY

ABSTRACT

OBJECTIVE: IDENTIFICATION OF GRASSLAND BIRD SPECIES WHICH ARE SENSITIVE TO THE EMISSIONS OF COAL-FIRED POWER PLANTS AND CAN BE USED TO MONITOR AND INDICATE AIR QUALITY.

FINAL OUTPUT: REPORT THAT HELPS DEVELOP THE CAPACITY TO PREDICT THE ECOLOGICAL IMPACTS OF COAL-FIRED POWER PLANT EMISSIONS BEFORE DAMAGE OCCURS. SEE ERIS PROJECT NOS. 00000172 (VOL. 1, NO. 1) AND 00000603 (VOL. 2, NO. 1) FOR RELATED PROJECTS.

00001620

PROJECT TITLE
DEMOGRAPHIC ECOLOGY OF PRONGHORN ANTELOPE (ANTILOCAPRA AMERICANA) IN THE POWDER RIVER BASIN, WYOMING

INVESTIGATOR(S)
MARK S. BOYCE / JAMES TATE, JR.

RESEARCH INSTITUTION
BOYCE CONSULTING
1414 RENSHAW STREET
LARAMIE, WY 82070

PRIMARY SPONSOR
ARCO COAL CO.
P. O. BOX 5300
DENVER, CO 80217

SECONDARY SPONSOR
UNIV. OF WYOMING, COLLEGE OF ARTS AND SCIENCES

PRIMARY FUNDING AMOUNT
$4,500

SECONDARY FUNDING AMOUNT
$700

TIME FRAME
OCTOBER 1976 TO DECEMBER 1981

LOCATION
WY - CAMPBELL CO. - COAL CREEK MINE - BLACK THUNDER MINE

ABSTRACT
WE ARE STUDYING THE DEMOGRAPHIC STRUCTURE AND HUNTER HARVEST CHARACTERISTICS OF A PRONGHORN POPULATION IN AN AREA WITH RAPID DEVELOPMENT FOR COAL SURFACE MINING. DRAMATIC VARIATION IN JUVENILE SURVIVORSHIP AND GROWTH RATES OCCUR FROM YEAR TO YEAR DUE PARTLY TO VARIATION IN PRECIPITATION. HUNTING PRESSURE IS HIGH AND HAS INCREASED MARKEDLY OVER THE PAST DECADE DUE TO INCREASES IN HARVEST QUOTAS AND LICENSES ISSUED BY THE WYOMING GAME AND FISH DEPARTMENT.

REPORTS AND PUBLICATIONS
"PRONGHORN (ANTILOCAPRA AMERICANA) DEMOGRAPHY AND HUNTING QUOTAS IN THE POWDER RIVER BASIN, WYOMING." M. S. BOYCE AND J. TATE, JR. / IN PRESS / PROCEEDINGS OF THE INTERNATIONAL WILDLIFE CONGRESS, DUBLIN, IRELAND / OCTOBER 1979

PUBLICATIONS ADDRESS
M. S. BOYCE
UNIV. OF WYOMING, DEPT. OF ZOOLOGY & PHYSIOLOGY
LARAMIE, WY 82071

00001621

PROJECT TITLE
IDENTIFICATION OF CRITERION 15 RESIDENT SPECIES HABITAT--ND

SOURCE NUMBER
MT950 CTO 8 AND - 28

INVESTIGATOR(S)
CHRIS GRONDAHL

RESEARCH INSTITUTION
NORTH DAKOTA DEPT. OF GAME & FISH
2121 LOVETT AVENUE
BISMARCK, ND 58501

PRIMARY SPONSOR
U. S. BUREAU OF LAND MANAGEMENT
P. O. BOX 1229
DICKINSON, ND 58601

PRIMARY FUNDING AMOUNT
$9,990

TIME FRAME
JANUARY 14, 1980 TO JUNE 30, 1980

LOCATION
ND - MERCER CO., STARK CO., DUNN CO., MCLEAN CO., OLIVER CO.

ABSTRACT
DEVELOPMENT OF A LIST OF SENSITIVE ND RESIDENT WILDLIFE SPECIES BY NORTH DAKOTA GAME & FISH DEPT. AND COLOR-CODED ECOTYPING OF FIVE MAJOR WILDLIFE HABITATS RELATIVE TO UNSUITABILITY CRITERION 15 OF THE FEDERAL COAL PROGRAM. USED COLOR INFRARED PHOTOGRAPHY (AUGUST 1975, 1-80,000) AND SELECTED EQUIPMENT TO DEFINE FIVE MAJOR WILDLIFE HABITATS AT THE 1:24,000 SCALE. ACREAGES OF EACH ECOTYPE WAS COMPUTED WITH AN ELECTRONIC PLANIMETER FOR EACH SECTION MAPPED. EIGHTEEN SEPARATE MYLAR MAPS WERE PREPARED FOR THE 12 PROPOSED COAL MINING AREAS IN WEST-CENTRAL NORTH DAKOTA. THIS PROJECT IS PART OF THE WEST-CENTRAL NORTH DAKOTA LAND USE PLAN, WITHIN THE FORT UNION EIS AREA.

REPORTS AND PUBLICATIONS
METHODOLOGY REPORT AND 18 MYLAR MAPS

PUBLICATIONS ADDRESS
PROCEDURE-METHODS REPORT AVAILABLE FROM BLM, DICKINSON, ND. MAPS UNAVAILABLE UNTIL REPRODUCTION PROCESS COMPLETED IN MID-81 (ESTIMATE).

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00001622
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PROJECT TITLE
   SELECTED RAPTOR HABITAT INVENTORY - LITTLE MISSOURI RIVER
   BADLANDS - DUNN CO., NORTH DAKOTA
SOURCE NUMBER
   MT950 CTO 21
INVESTIGATOR(S)
   JAMES GRIER
RESEARCH INSTITUTION
   NORTH DAKOTA DEPT. OF GAME AND FISH
   2121 LOVETT AVENUE
   BISMARCK, ND  58501
COOPERATOR
   NORTH DAKOTA STATE UNIV.
   FARGO, ND
PRIMARY SPONSOR
   U. S. BUREAU OF LAND MANAGEMENT
   P. O. BOX 1229
   DICKINSON, ND  58601
PRIMARY FUNDING AMOUNT
   $5,000
TIME FRAME
   MAY 1, 1979 TO OCTOBER 31, 1979
LOCATION
   ND - DUNN CO.
ABSTRACT
   GENERAL FIELD INVENTORY OF SELECTED AREAS ALONG LITTLE MISSOURI
   RIVER IN DUNN COUNTY, NORTH DAKOTA.  SELECTED RAPTORS WERE
   EMPHASIZED--PRAIRIE FALCON AND GOLDEN EAGLES.  NEST LOCATIONS
   FOR MOST RAPTORS INVENTORIED.  EXISTING AND ANTICIPATED DAMAGES
   FROM OIL-GAS, VEHICLES, AND LIVESTOCK ACTIVITIES TO RAPTORS AND
   THEIR HABITATS.  THIS PROJECT IS PART OF THE WEST-CENTRAL NORTH
   DAKOTA LAND USE PLAN, WITHIN THE FORT UNION EIS AREA.
REPORTS AND PUBLICATIONS
   FINAL CONTRACT REPORT
PUBLICATIONS ADDRESS
   U. S. BLM, DICKINSON, ND


00001623
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PROJECT TITLE
   MIGRATORY (FEDERAL LIST) BIRD HABITATS DELINEATION - WEST-
   CENTRAL NORTH DAKOTA
SOURCE NUMBER
   MT 950 CTO 22
INVESTIGATOR(S)
   CHRIS GRUNDAHL
RESEARCH INSTITUTION
   NORTH DAKOTA DEPT. OF GAME AND FISH
   2121 LOVETT AVE.
   BISMARCK, ND  58501
PRIMARY SPONSOR
   U. S. BUREAU OF LAND MANAGEMENT
   BOX 1229
   DICKINSON, ND  58601
PRIMARY FUNDING AMOUNT
   $10,000
TIME FRAME
   JUNE 1, 1980 TO NOVEMBER 1, 1980
LOCATION
   ND - MERCER CO., DUNN CO., STARK CO., MCLEAN CO., OLIVER CO.
ABSTRACT
   U.S. FISH AND WILDLIFE SERVICE PREPARED A LIST OF MIGRATORY
   BIRDS IN THE NORTH DAKOTA COAL REGION WHICH MUST BE CONSIDERED
   RELATIVE TO UNSUITABILITY CRITERION 14.  ESSENTIAL HABITATS FOR
   THESE SPECIES ARE TO BE IDENTIFIED BY THE NORTH DAKOTA DEPT.
   OF GAME AND FISH UNDER CONTRACT.  THESE DATA WILL BE USED IN
   THE FEDERAL-STATE APPLICATION OF THE UNSUITABILITY CRITERIA.
   FIVE MAJOR ECOTYPES WERE DELINEATED ON 1:24000 SCALE COLOR-CODE
   MAPS FROM 1:80000 COLOR INFRARED AERIAL PHOTOS.  ESSENTIAL
   HABITATS FOR THE BIRD SPECIES WILL BE IDENTIFIED ON THESE MAPS.
   THIS PROJECT IS PART OF THE WEST-CENTRAL NORTH DAKOTA LAND USE
   PLAN, WITHIN THE FORT UNION EIS AREA.
REPORTS AND PUBLICATIONS
   FINAL REPORT DUE ABOUT JANUARY 1, 1980.
PUBLICATIONS ADDRESS
   U. S. BUREAU OF LAND MANAGEMENT
   DICKINSON, ND  58601


00001624
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PROJECT TITLE
   BALD AND GOLDEN EAGLE TERRITORIES DETERMINATION -- WESTERN
   NORTH DAKOTA
SOURCE NUMBER
   MT950 CTO 20
INVESTIGATOR(S)
   CHRIS GRONDAHL
RESEARCH INSTITUTION
   NORTH DAKOTA DEPT. OF GAME AND FISH
   2121 LOVETT AVE.
   BISMARCK, ND  58501
PRIMARY SPONSOR
   U. S. BUREAU OF LAND MANAGEMENT
   BOX 1229
   DICKINSON, ND  58601
PRIMARY FUNDING AMOUNT
   $9,995
TIME FRAME
   JUNE 1, 1980 TO FEBRUARY 28, 1981
LOCATION
   ND - MERCER CO., STARK CO., DUNN CO., MCLEAN CO., OLIVER CO.
ABSTRACT
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DETERMINATION OF SUMMER NESTING TERRITORIES IN WEST-CENTRAL NORTH DAKOTA AND WINTER ROOST AREAS FOR BALD AND GOLDEN EAGLES. THIS IS IN RESPONSE TO POTENTIAL COAL STRIP MINING ACTIVITIES IN THE AREA. THIS PROJECT IS PART OF THE WEST-CENTRAL NORTH DAKOTA LAND USE PLAN, IN THE FORT UNION EIS AREA.

REPORTS AND PUBLICATIONS

FINAL REPORT AVAILABLE AFTER MARCH 1, 1981.

PUBLICATIONS ADDRESS

U. S. BUREAU OF LAND MANAGEMENT
DICKINSON, ND 58601

00001625

PROJECT TITLE

FALCON NEST TERRITORIES INVENTORY -- WESTERN NORTH DAKOTA

SOURCE NUMBER

MT 950 CTO 19

INVESTIGATOR(S)

CHRIS GRONDAHL

RESEARCH INSTITUTION

NORTH DAKOTA DEPT. OF GAME AND FISH
2121 LOVETT AVE.
BISMARCK, ND 58501

PRIMARY SPONSOR

U. S. BUREAU OF LAND MANAGEMENT
BOX 1229
DICKINSON, ND 58601

PRIMARY FUNDING AMOUNT

$10,000

TIME FRAME

JUNE 1, 1980 TO OCTOBER 7, 1980

LOCATION

ND - MERCER CO., DUNN CO., STARK CO., MCLEAN CO., OLIVER CO.

ABSTRACT

DETERMINE EXISTING POTENTIAL HABITAT FOR PEREGRINE AND PRAIRIE FALCONS IN POTENTIAL COAL STRIP MINING AREAS WITHIN THE BOUNDS OF THE SCHEDULED FORT UNION ENVIRONMENTAL IMPACT STATEMENT. THIS IS IN RESPONSE TO EXISTING LEGISLATION.

REPORTS AND PUBLICATIONS

FINAL REPORT

PUBLICATIONS ADDRESS

U. S. BUREAU OF LAND MANAGEMENT
DICKINSON DISTRICT, BOX 1229
DICKINSON, ND 58601

00001626

PROJECT TITLE

BLACKFOOTED FERRET AND PRAIRIE DOG HABITAT DELINEATION - WESTERN NORTH DAKOTA

SOURCE NUMBER

MT 950 CTO 24

RESEARCH INSTITUTION

NORTH DAKOTA DEPT. OF GAME AND FISH
2121 LOVETT AVE.
BISMARCK, ND 58501

PRIMARY SPONSOR

U. S. BUREAU OF LAND MANAGEMENT
DICKINSON DISTRICT
BOX 1229
DICKINSON, ND 58601

PRIMARY FUNDING AMOUNT

$10,000

TIME FRAME

JUNE 1, 1980 TO OCTOBER 20, 1980

LOCATION

ND - MERCER CO., DUNN CO., STARK CO., MCLEAN CO., OLIVER CO.

ABSTRACT

DETERMINE EXISTING PRAIRIE DOG HABITAT, CONDITION, AND VIABILIT AS CRITICAL HABITAT FOR BLACKFOOTED FERRET IN POTENTIAL COAL STRIP MINING AREAS WITHIN THE BOUNDS OF THE SCHEDULED FORT UNIO ENVIRONMENTAL IMPACT STATEMENT AREA. THIS IS IN RESPONSE TO EXISTING LEGISLATION. THIS PROJECT IS PART OF THE WEST-CENTRAL NORTH DAKOTA LAND USE PLAN.

REPORTS AND PUBLICATIONS

FINAL CONTRACTOR'S REPORT

PUBLICATIONS ADDRESS

U. S. BUREAU OF LAND MANAGEMENT
BOX 1229
DICKINSON, ND 58601

00001627

PROJECT TITLE

THE HUMAN AND SOCIAL IMPACTS OF ENERGY BOOM DEVELOPMENT IN FOUR WESTERN COLORADO COMMUNITIES (WITH WORK CONTINUING UNDER THE WASHINGTON STATE UNIVERSITY PROJECT, "SOCIAL IMPACTS OF RAPID COMMUNITY GROWTH.")

SOURCE NUMBER

3067 0478

INVESTIGATOR(S)

WILLIAM R. FREUDENBURG

RESEARCH INSTITUTION

WASHINGTON STATE UNIV.
DEPT. OF SOCIOLOGY & RURAL SOCIOLOGY
PULLMAN, WA 99164

PRIMARY SPONSOR

W. R. FREUDENBURG, WASHINGTON STATE UNIV.
DEPT. OF SOCIOLOGY & RURAL SOCIOLOGY
PULLMANN, WA 99164

SECONDARY SPONSOR

NATIONAL SCIENCE FOUNDATION / WASHINGTON STATE AGRICULTURAL RES CENTER / WESTERN RURAL DEV. CENTER / COLORADO ENERGY IMPACTS OFFICE

PRIMARY FUNDING AMOUNT

NOT AVAILABLE

TIME FRAME

JULY 1975 TO CONTINUING

LOCATION

CO - DELTA CO., JACKSON CO., MOFFATT CO., RIO BLANCO CO.

ABSTRACT

RESEARCH HAS BEEN UNDERWAY IN FOUR WESTERN COLORADO ENERGY COMMUNITIES SINCE 1975. DATA COLLECTION HAS INCLUDED (1) SIXTEEN MONTHS OF FIRSTHAND, ETHNOGRAPHIC RESEARCH, SUPPLEMENTED WITH NUMEROUS ADDITIONAL VISITS TO STUDY COMMUNITIES BEFORE AND AFTER THE PERIOD OF PRIMARY FIRSTHAND RESEARCH; (2) EXTENSIVE USE OF PUBLICLY AVAILABLE STATISTICS AND EXISTING HISTORICAL DOCUMENTS; AND (3) SURVEY RESEARCH. THREE MAJOR SURVEYS HAVE BEEN CONDUCTED: (A) A PROBABILITY SAMP OF THE HOUSEHOLDS IN EACH OF THE FOUR COMMUNITIES (APPROXIMATEL 600 CASES) AND (B & C) TWO WAVES OF SURVEYS IN THE (ONE) HIGH SCHOOL OF EACH COMMUNITY (APPROXIMATELY 400 CASES EACH TIME, WITH TWO YEARS BETWEEN WAVES).

UNLIKE MOST PREVIOUS WORK IN THE AREA OF "SOCIOECONOMIC IMPACTS THIS RESEARCH HAS FOCUSED ON IMPACTS WHICH HAVE ACTUALLY OCCURRED, AND NOT MERELY ON THOSE WHICH ARE ANTICIPATED. MOREOVER, THE PRIMARY CONCERN HAS BEEN WITH THE HUMAN AND SOCIA CONSEQUENCES OF RAPID COMMUNITY GROWTH--PARTICULARLY THE EFFECT OF GROWTH ON COMMUNITY SOCIAL STRUCTURES AND UPON PERSONALLY PERCEIVED WELL-BEING AT THE INDIVIDUAL LEVEL. SEVERAL PAPERS HAVE ALREADY REPORTED UPON PROJECT RESULTS AND SEVERAL OTHERS ARE CURRENTLY IN PREPARATION.

THE NEXT PHASE OF THIS RESEARCH IS A "LONGITUDINAL STUDY OF BOOMTOWN MENTAL HEALTH IMPACTS," WHICH WILL PRODUCE A QUANTITATIVE ANALYSIS OF CASELOAD TRENDS OVER A SEVEN-YEAR PERIOD.

REPORTS AND PUBLICATIONS

SEVERAL REPORTS AND PUBLICATIONS

PUBLICATIONS ADDRESS

DR. W. R. FREUDENBURG
WASHINGTON STATE UNIV., DEPT. OF SOCIOLOGY
PULLMAN, WA 99164

00001628

PROJECT TITLE

GROWTH MANAGEMENT PLAN FOR JOHNSON COUNTY, WYOMING

INVESTIGATOR(S)

NADINE GROSS / KENNETH GROSS

RESEARCH INSTITUTION

BUFFALO-JOHNSON COUNTY PLANNING OFFICE
P. O. BOX 1009
BUFFALO, WY 82834

COOPERATOR

UNIV. OF WYOMING
INST. FOR POLICY RESEARCH
P. O. BOX 3925, UNIVERSITY STATION
LARAMIE, WY 82701

PRIMARY SPONSOR

FARMERS HOME '601' GRANT PROGRAM
FARMERS HOME ADMINISTRATION
2009 BIG HORN AVENUE
WORLAND, WY 82401

PRIMARY FUNDING AMOUNT

$35,000

TIME FRAME

NOV. 1, 1979 TO OCT. 31, 1980

LOCATION

WY - JOHNSON CO.

ABSTRACT

THE PLAN STUDIES THE AFFECTS OF COAL AND URANIUM PRODUCTION AND PROCESSING IMPACTS IN JOHNSON COUNTY, SCHOOL DISTRICT, TOWN OF KAYCEE AND CITY OF BUFFALO. FOUR URANIUM COMPANIES ARE CREATING THIS IMPACT. (J AND P CORPORATION, U. S. ENERGY, WYOMING MINERALS, AND COTTER CORPORATION) TEXACO AND TRANSWESTERN HAVE MADE THE ANNOUNCEMENT TO BUILD A COAL GASIFICATION PLANT; THE STARTING CONSTRUCTION DATE IS 1983. TH PLAN INCLUDES A BRIEF DESCRIPTION OF POPULATION IMPACT AND SOCIOECONOMIC IMPACTS IN HOUSING, SCHOOLS, PUBLIC FACILITIES, ETC. FOR THE YEARS 1978-79 FOR JOHNSON COUNTY, BUFFALO AND KAYC THE POPULATION SECTION OF THE PLAN SHOWS THE POPULATION IMPACT WHICH WILL BE EXPECTED OVER THE NEXT FIVE YEARS (1980-85

THE MAJOR IMPACT WILL BE FROM THE TEXACO-TRANSWESTERN ANNOUNCEMENT. BASED ON THESE POPULATION PROJECTIONS THE PLAN DETAILS THE EXISTING NEED AS WELL AS THE EXPECTED NEED FOR HOUSING, THE SCHOOL DISTRICT, PUBLIC FACILITY NEEDS FOR JOHNSON COUNTY, BUFFALO AND KAYCEE OVER THE NEXT FIVE YEARS. THE FINANCIAL SECTION DETAILS THE BONDING CAPACITIES OF EACH LEGAL ENTITY, THE CURRENT BONDING INDEBTEDNESS, REVENUES, AND OPERATING AND CAPITAL FACILITY NEEDS, THE YEAR NEEDED AND A PROPOSED METHOD TO FINANCE THE FACILITY.

REPORTS AND PUBLICATIONS
GROWTH MANAGEMENT PLAN FOR JOHNSON COUNTY, WYOMING / PREPARED BY KENNETH GROSS AND NADINE GROSS / BUFFALO-JOHNSON COUNTY PLANNING OFFICE / P. O. BOX 1009 / BUFFALO, WY 82834

PUBLICATIONS ADDRESS
BUFFALO-JOHNSON COUNTY PLANNING OFFICE
P. O. BOX 1009
BUFFALO, WY 82834

00001629

PROJECT TITLE
COMPARATIVE STUDY OF CHANGE AND DISORGANIZATION IN ENERGY DEVELOPMENT COMMUNITIES OF THE GREAT PLAINS

SOURCE NUMBER
7060-30011

INVESTIGATOR(S)
J. THOMPSON

RESEARCH INSTITUTION
UNIV. OF WYOMING
INST. FOR POLICY RESEARCH
UNIVERSITY STATION
LARAMIE, WY 82071

PRIMARY SPONSOR
U. S. GEOLOGICAL SURVEY
RESTON, VA

PRIMARY FUNDING AMOUNT
NOT AVAILABLE

TIME FRAME
OCTOBER 1979 TO OCTOBER 1980

LOCATION
WY

ABSTRACT
THE PURPOSE OF THIS STUDY IS TO DEVELOP TESTABLE HYPOTHESES CONCERNING THE EFFECTS OF RAPID COMMUNITY CHANGE ASSOCIATED WITH ENERGY DEVELOPMENT ON THE SOCIAL WELL-BEING OF LOCAL POPULATIONS. TO THIS POINT, STATEMENTS CONCERNING THESE EFFECT MADE ON THE BASIS OF LIMITED EVIDENCE AND ANALYSIS ARE HAVING SUBSTANTIAL INFLUENCE ON POLICY ACTION IN SEVERAL AREAS WHERE RAPID CHANGE ASSOCIATED WITH ENERGY DEVELOPMENT IS OCCURRING. MANY OF THE IMPACT STUDIES TO DATE HAVE DRAWN LARGELY NEGATIVE CONCLUSIONS ABOUT DEVELOPMENT. CRITICAL ANALYSIS OF THE SITUATION WILL PROCEED VIA THE FOLLOWING STEPS: (1) EXPLICATION OF THE THEORETICAL MEANING AND IMPLICATIONS OF THE ASSERTION THAT RAPID COMMUNITY CHANGE ASSOCIATED WITH ENERGY DEVELOPMENT HAS SOCIAL CONSEQUENCES WHICH ON THE WHOLE CAN BE REGARDED AS NEGATIVE, INCLUDING NEGATIVE CONCLUSIONS REGARDING THE SOCIAL ORGANIZATION OF AFFECTED COMMUNITIES AND ATTENDANT CITIZEN EFFECTS--SUCH AS ALLEGED HIGH RATES OF DIVORCE, WELFARE DEPENDENCE, CRIME, MENTAL ILLNESS, ETC. (ASSERTIONS WILL BE REFINED TO PRODUCE GENERAL HYPOTHESES FOR EMPIRICAL STUDY); (2) THE TESTING PROCESS, INCLUDING EXAMINATION OF EMPIRICAL TRENDS IN A SELECTED SET OF LOCALITIES, SPECIFICALLY IN THE OLD WEST STATES, WHICH HAVE EXPERIENCED VARYING DEGREES AND RATES OF CHANGE APPARENTLY ASSOCIATED WITH ENERGY DEVELOPMENT IN RECENT YEARS; (3) SPECIFICATION OF ALTERNATIVE (COMPETING) HYPOTHESES DERIVED FROM PREVIOUS RESEARCH AND FROM GENERAL THEORIES OF SOCIAL AND COMMUNITY CHANGE; AND (4) MULTIVARIATE ANALYSES TO ASSESS THE LEVEL OF SUPPORT PROVIDED THE PRINCIPAL HYPOTHESIS AND THE MAJOR COMPETING HYPOTHESES. THE RESULTS OF THIS ANALYSIS AND THEORY REFINEMENT WILL BE APPLIED TO DEVELOPING IMPROVED SOCIOECONOMIC ANALYSES FOR ENVIRONMENTAL IMPACT STATEMENTS.

00001630

PROJECT TITLE
DUNN CENTER COAL DEPOSIT CLASS II CULTURAL RESOURCES INVENTORY

SOURCE NUMBER
YA-553-RFPO-1052

INVESTIGATOR(S)
T. WEBER GREISER / F. C. MUNDAY / ALAN S. NEWELL / HISTORICAL RESEARCH ASSOCIATES, P. O. BOX 7086, MISSOULA, MT 59801

RESEARCH INSTITUTION
UNIV. OF MONTANA
DEPT. OF ANTHROPOLOGY
MISSOULA, MT 59801

COOPERATOR
UNIV. OF NORTH DAKOTA
DEPT. OF ANTHROPOLOGY AND ARCHAEOLOGY
UNIVERSITY STATION
GRAND FORKS, ND 58201

PRIMARY SPONSOR
U. S. BUREAU OF LAND MANAGEMENT
P. O. BOX 1229
PULVER HALL
DICKINSON, ND 58601

PRIMARY FUNDING AMOUNT
$48,052

TIME FRAME
AUGUST 28, 1980 TO APRIL 1, 1981

LOCATION
ND - DUNN CO.

ABSTRACT
IMPORTANT HISTORIC AND PREHISTORIC CULTURAL RESOURCES EXIST IN

THE VICINITY OF PROPOSED COAL DEVELOPMENT ON THE DUNN CENTER COAL DEPOSIT. THESE RESOURCES INCLUDE KNIFE RIVER FLINT PROCUREMENT AREAS, PREHISTORIC HABITATION AREAS, SETTLEMENT ERA FARMSTEADS, AND EARLY CENTURY FARMING AND COMMUNIAL AREAS. A WIDE AREA SURVEY WITH A LARGE SAMPLING FRACTION WAS DESIGNED TO TEST THE RELATIONSHIP AND IMPORTANCE OF THESE SITES. THE SURVEY WAS ALSO DESIGNED TO TEST THE RELATIONSHIP OF ENVIRONMENTAL VARIABLES TO HISTORIC AND PREHISTORIC CULTURAL RESOURCES. THE DATA COLLECTED WILL BE USED AS DESCRIBED AND IN THE PLANNING PROCESS FOR COAL DEVELOPMENT. THIS PROJECT IS PART OF THE FORT UNION COAL PROJECT, MONTANA STATE OFFICE OF THE U. S. BUREAU OF LAND MANAGEMENT.

00001631

PROJECT TITLE
ENERGY DEVELOPMENT IMPACT COMMUNITY ANTI-CRIME PROGRAM

SOURCE NUMBER
79CAAX0029

INVESTIGATOR(S)
E. WARNER

RESEARCH INSTITUTION
WESTERN ACTION TRAINING INST. INC.
130 W. 12TH AVE.
DENVER, CO 80204

PRIMARY SPONSOR
U. S. DEPT. OF JUSTICE
LAW ENFORCEMENT ASSISTANCE ADMIN.
633 INDIANA AVE. N.W.
WASHINGTON, DC 20531

PRIMARY FUNDING AMOUNT
1979: $172,578

TIME FRAME
SEPTEMBER 1979 TO SEPTEMBER 1980

LOCATION
CO - MT - UT - WY

ABSTRACT

THE WESTERN ACTION TRAINING INSTITUTE (WATI) IS A NON-PROFIT CORPORATION WORKING IN LOW AND MODERATE INCOME COMMUNITIES IN THE INTERMOUNTAIN WEST (WYOMING, COLORADO, UTAH AND MONTANA). WATI PROPOSES TO ASSIST THE LOCAL RESIDENTS TO: COME TOGETHER TO DISCUSS COMMON PROBLEMS AND IDENTIFY POSSIBLE SOLUTIONS; ESTABLISH STRUCTURED ORGANIZATIONS TO IMPLEMENT ANTI-CRIME EFFORTS; ASSIST SENIOR CITIZENS IN CONFRONTING THE CRIME PROBLEMS, INCLUDING FEAR OF CRIME THEY FACE; MOBILIZE YOUTH INTO ACTIVITIES TO AVOID PROBLEMS OF DELINQUENCY; INCREASE COMMUNITY AWARENESS OF POTENTIAL CRIMINAL JUSTICE SYSTEM PROBLEMS AND WAYS TO COMBAT THEM; CONTINUE EXISTING AWARENESS OF COMMUNITY NETWORKS AND HELP ASSIMILATE NEWCOMERS INTO THIS NETWORK; AND SHARE INFORMATION BETWEEN COMMUNITIES TO DEVELOP AWARENESS OF COMMON PROBLEMS AND SOLUTIONS.

00001632

PROJECT TITLE
IMPACTS OF COAL DEVELOPMENT UPON THE BILLINGS URBAN AREA

INVESTIGATOR(S)
MARK C. WYCHE / T. D. BROWNE / E. F. HARVEY / F. C. FRICK

RESEARCH INSTITUTION
BROWNE, BORTZ & CODDINGTON
100 S. MADISON
DENVER, CO 80209

PRIMARY SPONSOR
BILLINGS-YELLOWSTONE CITY-COUNTY PLANNING BOARD
510 NORTH 28TH STREET, 4TH FLOOR
BILLINGS, MT 59101

PRIMARY FUNDING AMOUNT
$50,000

TIME FRAME
NOVEMBER 1979 TO AUGUST 1980

LOCATION
MT - YELLOWSTONE CO. - BILLINGS

ABSTRACT

THE BILLINGS-YELLOWSTONE CITY-COUNTY PLANNING BOARD ANNOUNCED ON JULY 17, 1979, THAT IT DESIRED A STUDY ABOUT DIRECT AND SECONDARY IMPACTS CAUSED BY REGIONAL COAL DEVELOPMENT. THE STUDY AREA WAS DEFINED AS THE CITY OF BILLINGS AND ITS JURISDICTIONAL AREA, WHICH COVERS A FOUR AND ONE-HALF MILE RADIUS SURROUNDING BILLINGS. THE STUDY COMMENCED IN MID-NOVEMBER 1979, AND THE FUNDING SOURCE WAS THE MONTANA COAL BOARD. THE ANALYSIS CONSIDERED AND EVALUATED DATA COLLECTED THROUGH PRIMARY TECHNIQUES AS WELL AS SECONDARY SOURCES. INCREMENTAL EFFECTS WERE IDENTIFIED FOR EMPLOYMENT, POPULATION AND HOUSEHOLDS IN THE BILLINGS URBAN AREA BASED UPON REGIONAL COAL DEVELOPMENT. IMPACTS WERE COMPARED WITH FUTURE GROWTH TO ILLUSTRATE THE PROPORTION OF SOCIOECONOMIC INFLUENCE WHICH COAL HAS HAD, OR WILL HAVE, UPON THE BILLINGS COMMUNITY. AS PART OF THIS ANALYSIS, BOTH PRIVATE AND PUBLIC SECTOR IMPACTS WERE EXAMINED.

REPORTS AND PUBLICATIONS
IMPACTS OF COAL DEVELOPMENT UPON THE BILLINGS URBAN AREA / BROWNE, BORTZ & CODDINGTON / 1980

PUBLICATIONS ADDRESS
BILLINGS-YELLOWSTONE CITY-COUNTY PLANNING BOARD
510 NORTH 28TH STREET
BILLINGS, MT 59101

00001633

PROJECT TITLE
A SOCIOECONOMIC ASSESSMENT OF THE ROJO CAPALLO MINE

SOURCE NUMBER
10075156

INVESTIGATOR(S)

JAMES G. THOMPSON
RESEARCH INSTITUTION
WYOMING RESEARCH CORP.
1050 N. 3RD STREET, UNIT C, SUITE N
LARAMIE, WY 82070
PRIMARY SPONSOR
OLD WEST REGIONAL COMMISSION
228 HEDDEN-EMPIRE BLDG.
BILLINGS, MT 59101
PRIMARY FUNDING AMOUNT
$36,445.38
TIME FRAME
FEBRUARY 25, 1980 TO MAY 31, 1980
LOCATION
WY - CAMPBELL CO.
ABSTRACT

THIS ASSESSMENT IS TO BE UTILIZED IN PREPARATION OF AN ENVIRONMENTAL IMPACT STATEMENT FOR THE ROJO CABALLO MINE IN CAMPBELL COUNTY, WYOMING, AND IS DESIGNED TO COMPLY WITH THE REQUIREMENTS OF THE NATIONAL ENVIRONMENTAL POLICY ACT AND THE PROPOSED NEPA REGULATIONS AS PUT FORTH BY THE COUNCIL ON ENVIRONMENTAL QUALITY. THE OBJECTIVES ARE: 1) TO CONDUCT A COMMUNITY INFRASTRUCTURE ASSESSMENT; 2) TO CONDUCT AN UPDATED FISCAL ANALYSIS FOR CAMPBELL COUNTY, CAMPBELL COUNTY SCHOOL DISTRICT NO. 1, AND THE CITY OF GILLETTE; 3) TO ANALYZE SOCIAL CHANGE; 4) TO ASSESS MITIGATING STRATEGIES; AND 5) TO PREPARE A SUMMARY WRITTEN IN THE EIS FORMAT OF THE CLIENT AGENCY, OSM.

00001634

PROJECT TITLE
A SOCIOECONOMIC ASSESSMENT OF THE CACHE CREEK DRILLING SITE
SOURCE NUMBER
10075197
INVESTIGATOR(S)
JAMES G. THOMPSON
RESEARCH INSTITUTION
WYOMING RESEARCH CORP.
1050 N. 3RD STREET, UNIT C, SUITE N
LARAMIE, WY 82070
PRIMARY SPONSOR
OLD WEST REGIONAL COMMISSION
228 HEDDEN-EMPIRE BLDG.
BILLINGS, MT 59101
PRIMARY FUNDING AMOUNT
$55,294.26
TIME FRAME
AUGUST 1, 1980 TO MARCH 32, 1981
LOCATION
WY - TETON CO.
ABSTRACT

THE PURPOSE OF THIS STUDY IS TO COMPLETE AN ANALYSIS DESIGNED TO PROVIDE THE SOCIOECONOMIC ASSESSMENT TO BE UTILIZED IN PREPARATION OF AN ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR THE CACHE CREEK DRILLING SITE IN TETON COUNTY, WYOMING. FEW ASSESSMENTS HAVE BEEN COMPLETED FOR PROJECTS IN TETON COUNTY (THE LOCATION OF THE PROPOSED DRILLING SITE) AND SPECIFIC PROBLEM AREAS NEED TO BE EXAMINED WITHIN THE SCOPE OF THIS ASSESSMENT. NO PREVIOUS ASSESSMENTS DONE IN THIS AREA HAVE HAD TO ADDRESS THE PERVASIVE QUESTIONS OF SOCIAL AND ECONOMIC CHANGE SUCH AS CONSIDERATION OF EQUITABLE OR INEQUITABLE DISTRIBUTION OF IMPACTS, IDENTIFICATION OF MAJOR ECONOMIC AND POLITICAL INTEREST GROUPS AND THE MEANINGS ATTACHED TO RESOURCE EXTRACTION BY SUCH GROUPS. ALSO, LEGISLATION AFFECTIN FISCAL POLICY IS CHANGING SO RAPIDLY THAT FISCAL FORECASTS AND PROJECTIONS FOR THE AREA ARE ALSO QUICKLY RENDERED OBSOLETE.

00001635

PROJECT TITLE
A SOCIOECONOMIC ASSESSMENT OF THE SOUTH RAWHIDE MINE
SOURCE NUMBER
10175016
INVESTIGATOR(S)
JAMES G. THOMPSON
RESEARCH INSTITUTION
WYOMING RESEARCH CORP.
1050 N. 3RD STREET, UNIT C, SUITE N
LARAMIE, WY 82070
PRIMARY SPONSOR
OLD WEST REGIONAL COMMISSION
228 HEDDEN-EMPIRE BLDG.
BILLINGS, MT 59101
PRIMARY FUNDING AMOUNT
$26,944.99
TIME FRAME
NOV. 10, 1980 TO APRIL 30, 1981
LOCATION
WY - CAMPBELL CO.
ABSTRACT

THE PURPOSE OF THIS PROPOSAL IS TO PROVIDE THE SOCIOECONOMIC ANALYSIS TO BE UTILIZED IN PREPARATION OF AN ENVIRONMENTAL IMPACT STATEMENT (EIS) FOR THE SOUTH RAWHIDE MINE IN CAMPBELL COUNTY, WYOMING. THE ANALYSIS WILL INCLUDE: A DESCRIPTION OF THE EXISTING ENVIRONMENT, DELINEATION OF IMPACTS OF THE MINING ACTIVITY ON THE EXISTING SOCIOECONOMIC ENVIRONMENT, SPECIFICATION OF UNAVOIDABLE ADVERSE EFFECTS, DISCUSSION OF THE RELATIONSHIP BETWEEN SHORT-TERM USES AND LONG-TERM PRODUCTIVITY OF THE ENVIRONMENT IN TERMS OF SOCIOECONOMIC EFFECTS, AND DISCUSSION OF FACTORS OR ACTIONS EITHER IN PLACE OR OTHERWISE AVAILABLE TO DECISION-MAKERS THAT CAN MITIGATE NEGATIVE IMPACTS.

1.7 FOSSIL FUELS - ENERGY CONVERSION & TRANSPORT

00001636

PROJECT TITLE

IMPACT OF INCREASED COAL SHIPMENTS IN THE MINNESOTA-NORTH DAKOTA RAIL CORRIDOR

SOURCE NUMBER

18524I,

RESEARCH INSTITUTION

U. S. DEPT. OF ENERGY
17TH & PENNSYLVANIA AVE. N.W.
WASHINGTON, DC 20006

PRIMARY SPONSOR

U. S. DEPT. OF TRANSPORTATION
400 7TH STREET S.W.
WASHINGTON, DC 20590

PRIMARY FUNDING AMOUNT

NOT AVAILABLE

TIME FRAME

OCTOBER 1978 TO OCTOBER 1979

LOCATION

MN - ND

ABSTRACT

THIS STUDY OF THE BURLINGTON NORTHERN MAINLINE FROM THE WESTERN BORDER OF NORTH DAKOTA TO MINNESOTA'S TWIN CITIES AND TO THE MINNESOTA-WISCONSIN BORDER NEAR SUPERIOR, WISCONSIN, WILL FOCUS ON LOW-COST SOLUTIONS TO PROBLEMS ENCOUNTERED BY COMMUNITIES THROUGH WHICH FREQUENT UNIT TRAINS ARE HANDLING INCREASING COAL TRAFFIC. OF PARTICULAR CONCERN WILL BE GRADE CROSSINGS AND PROBLEMS INVOLVING ENVIRONMENT, SOCIOECONOMIC FACTORS AND COMMUNITY DEVELOPMENT. FOR RELATED PROJECTS SEE ERIS PROJECT NO. 00001464 (VOL. 4, NO. 1) AND 00001637 (VOL. 5, NO. 2).

00001637

PROJECT TITLE

ENVIRONMENTAL AND SOCIOECONOMIC IMPACTS OF INCREASED COAL RAIL TRAFFIC

SOURCE NUMBER

AS-B003R, 05161526

RESEARCH INSTITUTION

U. S. DEPT. OF ENERGY
CHICAGO, IL 60604

PRIMARY SPONSOR

U. S. DEPT. OF TRANSPORTATION
OFFICE OF THE SECRETARY OF TRANSPORTATION
400 7TH STREET S.W.
WASHINGTON, DC 20590

PRIMARY FUNDING AMOUNT

NOT AVAILABLE

TIME FRAME

SEPTEMBER 1978 TO SEPTEMBER 1979

LOCATION

MN - ND

ABSTRACT

THIS STUDY IS A JOINTLY FUNDED EFFORT TO IDENTIFY, ANALYZE AND PROPOSE SOLUTIONS TO ENVIRONMENTAL AND SOCIOECONOMIC IMPACTS UPON TOWNS AND CITIES OF INCREASED COAL RAIL TRAFFIC THROUGH THE RAIL CORRIDOR FROM BISMARCK, NORTH DAKOTA, TO ST. CLOUD, MINNESOTA, AND OTHER LINE SEGMENTS OF THE BURLINGTON NORTHERN RAILROAD. FOR RELATED PROJECTS, SEE ERIS PROJECT NO. 00001464 (VOL. 4, NO. 1) AND 00001636 (VOL. 5, NO. 2).

00001638

PROJECT TITLE

FORMULATION OF POLICIES FOR DEVELOPMENT OF SOLUTIONS TO REGIONAL COAL TRANSPORTATION PROBLEMS

SOURCE NUMBER

10971256

INVESTIGATOR(S)

RON RICHARDS / MONTANA DEPT. OF HIGHWAYS / 2701 PROSPECT AVE. / HELENA, MT 59601

RESEARCH INSTITUTION

MONTANA OFFICE OF THE GOVERNOR
STATE CAPITOL BUILDING
HELENA, MT 59601

PRIMARY SPONSOR

OLD WEST REGIONAL COMMISSION
228 HEDDEN-EMPIRE BLDG.
BILLINGS, MT 59101

PRIMARY FUNDING AMOUNT

$20,000

TIME FRAME

SEPT. 21, 1979 TO SEPT. 20, 1980

LOCATION

MT - NE - ND - WY

ABSTRACT

WITHIN THE NEAR TERM FUTURE, THE DEVELOPMENT OF THE COAL RESOURCE IN THE OLD WEST REGION WILL INCREASE GEOMETRICALLY. THREE OF THE FIVE OLD WEST STATES HAVE MASSIVE COAL RESOURCES AND ALL FIVE STATES WILL CONTINUE TO ENCOUNTER THE SIGNIFICANT IMPACTS OF TRANSPORTING THOSE COAL RESOUCES TO POINTS OF USE. THE COMMISSION STATES ARE IN NEED OF THE PROFESSIONAL SERVICES TO ASSIST IN DEVELOPING AND FORMULATING POLICIES AND PROGRAMS DIRECTED TOWARD SOLUTION OF THE REGIONAL COAL TRANSPORTATION PROBLEMS.

THE GRANTEE WILL CONCENTRATE ON IDENTIFYING THE PRIMARY COAL TRANSPORTATION IMPACTS AND MITIGATION OPTIONS AND THEN FORMULATE PROGRAMS AND POLICIES AIMED AT, AND ADDRESSED TO, THE SOLUTION OF SAID PROBLEMS. PRIMARY EMPHASIS WILL INCLUDE THE DEVELOPMENT OF A CONSULTATION MECHANISM WITH STATE OFFICIALS RESPONSIBLE FOR COAL TRANSPORTATION PLANNING AND GOVERNOR'S REPRESENTATIVES ON SUCH POLICY ISSUES.

00001639

PROJECT TITLE
STATE-OF-THE-ART REVIEW OF STATE/FEDERAL ENVIRONMENTAL REGULATIONS CONCERNING ELECTRICAL EFFECTS OF OVERHEAD TRANSMISSION LINES
SOURCE NUMBER
800296
INVESTIGATOR(S)
K. R. SHAH
RESEARCH INSTITUTION
SHAH & ASSOCIATES INC.
467 N. FREDERICK AVE.
GAITHERSBURG, MD 20760
PRIMARY SPONSOR
U. S. DEPT. OF ENERGY
DIV. OF ENV. CONTROL TECH.
WASHINGTON, DC
PRIMARY FUNDING AMOUNT
NOT AVAILABLE
TIME FRAME
MARCH 1978 TO CONTINUING
LOCATION
NATIONWIDE APPLICABILITY
ABSTRACT

ENVIRONMENTAL REGULATIONS CONCERNING ELECTRICAL EFFECTS OF ALL THE STATE AND FEDERAL AGENCIES ARE REVIEWED. THE VARIOUS REGULATORY AGENCIES WERE CONTACTED TO OBTAIN UP-TO-DATE DATA ON ENVIRONMENTAL REGULATIONS OF ELECTRICAL EFFECTS CONSISTING OF: (1) INTERFERENCE TO COMMUNICATION FACILITIES, (2) PUBLIC SAFETY AND COMFORT, (3) NOISE POLLUTION, AND (4) AIR-QUALITY. RESULTS OF THE STUDY INCLUDE: (1) COMMUNICATION INTERFERENCE: EVALUATION OF THE IMPACT TO COMMUNICATIONS BY TRANSMISSION LINES IS REQUIRED BY FCC, REA AND 23 STATES (NO QUANTITATIVE VALUES ARE GIVEN); (2) PUBLIC SAFETY AND COMFORT: 26 STATES, REA AND OFFICE OF NUCLEAR REACTOR REGULATIONS REQUIRE EVALUATION OF PUBLIC SAFETY AND COMFORT AND UNDUE HAZARD TO THE PROPERTY IN PROXIMITY OF TRANSMISSION LINES (ONLY THE STATE OF OREGON HAS DEVELOPED QUANTITATIVE VALUES OF PERMISSIBLE 9.0 KV/ ELECTRIC FIELD LEVEL. NESC REQUIRES 5 MA SHORT-CIRCUIT CRITERIA. VARIOUS REGULATORY AGENCIES REQUIRE DIFFERENT LEVELS E.G., MINNESOTA--8 KV/M AC AND 12 KV/M DC, NEW YORK--6.9 KV/M OVER PUBLIC ROADS AND 10.6 KV/M OVER PRIVATE ROADS, 1 KV/M AT THE EDGE OF RIGHT-OF-WAY, AND NORTH DAKOTA--8 KV/M AC AND 33 KV/M DC; (3) NOISE POLLUTION: OF 24 STATES AND EPA REQUIRING EVALUATION OF IMPACT OF NOISE FROM TRANSMISSION LINES 9 STATES AND EPA HAVE ESTABLISHED NOISE GUIDELINES (THE PERMISSIBLE NOISE LIMITS AT THE PROPERTY LINE VARIES FROM 40 DB(A) TO 70 DB(A)); AND (4) AIR QUALITY: AIR QUALITY GUIDELINES ADOPTED BY EPA AND MOST OF THE STATES FOR PHOTOCHEMICAL ARE OZONE--0.08 PPM (BY VOLUME) NOT TO BE EXCEEDED ONCE PER YEAR AND OXIDES OF NITROGEN--0.05 PPM MAXIMUM ANNUAL ARITHMETIC MEAN.

00001640

PROJECT TITLE
OPERATION OF SLAGGING FIXED BED, PRESSURE GASIFICATION PILOT PLANT
SOURCE NUMBER
C-19667
INVESTIGATOR(S)
T. G. TOWERS
RESEARCH INSTITUTION
STEARNS-ROGER, INC.
SYNTHETIC FUELS DEPT.
P. O. BOX 7165, UNIVERSITY STATION
GRAND FORKS, ND 58202
PRIMARY SPONSOR
U. S. DEPT. OF ENERGY
GRAND FORKS ENERGY TECH. CENTER
GRAND FORKS, ND
PRIMARY FUNDING AMOUNT
$1,800,000
TIME FRAME
MAY 1977 TO MAY 1982
LOCATION
ND
ABSTRACT

THE OBJECTIVES ARE TO OPERATE THE PILOT PLANT WITH SELECTED FEED COALS AND TO MEASURE AND CHARACTERIZE PLANT EFFLUENTS AS A BASIS FOR COMPILING ENVIRONMENTAL ASSESSMENT DATA AND TO ACQUIRE OPERATING AND CONTROL DATA TO SUPPORT IMPROVED AND ADVANCED GASIFICATION PROCESS.

00001641

PROJECT TITLE
COAL GASIFICATION ENVIRONMENTAL PROBLEMS FROM TRACE METALS IN BY-PRODUCTS
INVESTIGATOR(S)
W. VANMETER
RESEARCH INSTITUTION
UNIV. OF MONTANA
MISSOULA, MT 58901
PRIMARY SPONSOR
U. S. DEPT. OF ENERGY

OFFICE OF FOSSIL ENERGY
WASHINGTON, DC
PRIMARY FUNDING AMOUNT
$93,000
TIME FRAME
1975 TO 1978
LOCATION
MT
ABSTRACT

THE OBJECTIVES OF THIS PROJECT ARE: TO CONDUCT TESTS TO CHARACTERIZE COAL GASIFIER ASH AND OTHER WASTE MATERIALS WITH REGARD TO THE AMOUNTS OF TOXIC, WATER-SOLUBLE CHEMICAL SPECIES THEY CONTAIN AND TO DETERMINE THE RATES AT WHICH THEY ARE RELEASED BY LEACHING TREATMENTS. REPRESENTATIVE ASH AND OTHER WASTE SAMPLES WILL BE OBTAINED FROM SEVERAL OPERATING GASIFICATION PILOT PLANTS. THE SAMPLES WILL BE LEACHED WITH DISTILLED AND NATURAL GROUND WATER, AN AMMONIUM ACETATE SOLUTION, AND SULFURIC ACID, USING STANDARD COLUMN CHROMATOGPAPHY TECHNIQUES. THE AMMONIUM ACETATE (AN IONIC, BUFFERED MEDIUM) WILL CAUSE THE RELEASE OF MANY IONS THAT ARE NOT REMOVED BY SIMPLE SOLUBILITY IN WATER, YET IT WILL NOT MASK THE SUBSEQUENT ANALYSIS OF THE TOXIC SPECIES. THE SULFURIC ACID WILL INDICATE THE AMOUNT OF METALS THAT MAY BE RELEASED OVER A LONG TIME. A QUALITATIVE AND QUANTITATIVE ELEMENTAL ANALYSIS WILL BE PERFORMED ON THE LEACHATES OBTAINED TO DETERMINE WHETHER OR NOT GROUND AND SURFACE WATER CONTAMINATION MAY RESULT FROM THE INTERACTION OF NATURAL FORCES WITH THE FLY ASH, SLAG, AND OTHER BY-PRODUCTS OF COAL GASIFICATION PLANTS.

REPORTS AND PUBLICATIONS
FINAL REPORT
PUBLICATIONS ADDRESS
NATIONAL TECHNICAL INFORMATION SERVICE
5285 PORT ROYAL ROAD
SPRINGFIELD, VA 22161

00001642

PROJECT TITLE
MICROBIAL FOULING AND ITS EFFECT ON POWER GENERATION
SOURCE NUMBER
26000-526
INVESTIGATOR(S)
WILLIAM G. CHARACKLIS / FRANK L. ROE / NICHOLAS ZELVER
RESEARCH INSTITUTION
MONTANA STATE UNIV.
DEPT. OF CIVIL ENG. & ENG. MECHANICS
BOZEMAN, MT
PRIMARY SPONSOR
OFFICE OF NAVAL RESEARCH
800 N. QUINCY
ARLINGTON, VA 22217
PRIMARY FUNDING AMOUNT
$210,000
TIME FRAME
1980 TO 1982
LOCATION
MT
ABSTRACT

PART OF SEVERAL STUDIES ON MICROBIAL FOULING OF CONDENSER TUBES IN ELECTRIC POWER PLANTS. THIS STUDY MEASURES HOW THE THICKNESS OF THE MICROBIAL FILM EFFECTS FRICTIONAL RESISTANCE AND HEAT TRANSFER RESISTANCE, AND HOW WATER TEMPERATURE AND WATER QUALITY EFFECT GROWTH OF BIOFILM.

00001643

PROJECT TITLE
MHD ENVIRONMENTAL PROJECT
SOURCE NUMBER
AC07-79ID12036
INVESTIGATOR(S)
A. GREENBURG
RESEARCH INSTITUTION
MONTANA ENERGY & MHD RESEARCH & DEVELOPMENT INST.
BOX 3809
BUTTE, MT 59701
PRIMARY SPONSOR
U. S. DEPT. OF ENERGY
OFFICE OF FOSSIL ENERGY
WASHINGTON, DC
PRIMARY FUNDING AMOUNT
$500,000
TIME FRAME
FEBRUARY 1979 TO SEPTEMBER 1980
LOCATION
MT
ABSTRACT

THE SCOPE OF THIS ACTIVITY IS TO PROVIDE IDENTIFICATION AND CHARACTERIZATION OF ENVIRONMENTAL ISSUES OF CONCERN TO MHD FACILITIES. INCLUDED IN THIS WORK IS ANALYSIS OF ENVIRONMENTAL REQUIREMENTS FOR MHD, DEVELOPMENT OF AN ENVIRONMENTAL DATA BASE CHARACTERIZATION OF SYSTEM INTERFACES, VALIDATION OF QUENCH SYSTEMS, IMPACT OF EFFLUENT SPECIES, AND ENVIRONMENTAL SITE MONITORING.

00001644

PROJECT TITLE
PROPOSED PILOT PROJECT FOR THE PRODUCTIVE UTILIZATION OF WASTE HEAT
SOURCE NUMBER
10073038

RESEARCH INSTITUTION
BASIN ELECTRIC POWER COOPERATIVE
1717 EAST INTERSTATE AVENUE
BISMARCK, ND 58501

PRIMARY SPONSOR
OLD WEST REGIONAL COMMISSION
228 HEDDEN-EMPIRE BLDG.
BILLINGS, MT 59101

PRIMARY FUNDING AMOUNT
$19,512

TIME FRAME
OCTOBER 1, 1979 TO MARCH 1, 1980

LOCATION
ND

ABSTRACT

THE OBJECTIVE OF THIS INVESTIGATION IS TO DETERMINE IF LOW-GRAD HEAT ENERGY FROM THE MISSOURI BASIN POWER PROJECT'S LARAMIE RIVER STATION MANAGED BY BASIN ELECTRIC POWER COOPERATIVE HAS A POTENTIAL COMMERCIAL USE. THE LARAMIE RIVER STATION IS A COAL-FIRED ELECTRICAL GENERATING PLANT CONSISTING OF THREE 500 MEGAWATT UNITS, TWO OF WHICH WILL BE AVAILABLE FOR UTILIZATION OF LOW-GRADE HEAT ENERGY.

THIS STUDY CONSIDERS THE UTILIZATION OF THIS LOW-GRADE HEAT ENERGY IN TWO MAJOR AREAS OF APPLICATION: AQUACULTURE AND HORTICULTURE. AQUACULTURE FOR THIS APPLICATION MEANS RAISING FISH UNDER CONTROLLED CIRCUMSTANCES FOR COMMERCIAL SALES. AT THE LARAMIE RIVER STATION LOCATION, LOW-GRADE HEAT ENERGY WOULD BE USED TO CONTROL THE FISH-CULTURE WATER TEMPERATURE, THEREBY SUBSTANTIALLY REDUCING FUEL AND ENERGY COSTS THAT WOULD OTHERWISE BE REQUIRED IN AN AQUACULTURE VENTURE. HORTICULTURE, THE OTHER AREA INVESTIGATED, COMPRISES FLORICULTURE, POTTED PLANT PRODUCTION AND GREENHOUSE VEGETABLE PRODUCTION. LOW GRADE HEAT ENERGY WOULD BE APPLIED TO CONTROL THE GROWING ENVIRONMENT FOR THESE PRODUCTS, PRIMARILY IN GREENHOUSES.

00001645

PROJECT TITLE
IDENTIFICATION OF SYNTHETIC FUEL IMPACTS: A PRELIMINARY ASSESSMENT

INVESTIGATOR(S)
RONALD E. ERICKSON / L. S. MCKINSEY, R. GULD / W. D. TOMLINSON
G. BISSELL / K. ESPESETH / C. KRONBERG / J. MAJEWSKI / J. COOKE
N. ZELVER / T. SHILLINGTON

RESEARCH INSTITUTION
UNIV. OF MONTANA
ENVIRONMENTAL STUDIES PROGRAM
758 EDDY
MISSOULA, MT 59812

COOPERATOR
UNIV. OF MONTANA / WESTERN MONTANA SCIENCE COMMITTEE FOR PUBLIC INFORMATION / ENVIRONMENTAL LIBRARY / 758 EDDY / MISSOULA, MT 59812

PRIMARY SPONSOR
FORD FOUNDATION PROGRAM IN POLICY ANALYSIS FOR STATE ENVIRONMENTAL MANAGEMENT

SECONDARY SPONSOR
MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

PRIMARY FUNDING AMOUNT
$10,000

SECONDARY FUNDING AMOUNT
$2,500

TIME FRAME
MAY 1, 1980 TO OCTOBER 1, 1980

LOCATION
MT - NORTHERN GREAT PLAINS

ABSTRACT
THE PROJECT PROVIDED AN ANNOTATED BIBLIOGRAPHY OF THE LITERATURE CONCERNING THE IMPACTS OF DEVELOPING SYNFUELS FROM COAL. COMMENTARY AND/OR ABSTRACTS OF 386 KEY REFERENCES WERE INCLUDED IN ADDITION, 156 PAGES OF COMMENTARY ON FINDINGS, A SHORT SECTION ON "KEY CONTACTS", AND AN APPENDIX CONTAINING MORE THAN 100 PAGES OF PERTINENT DATA ARE INCLUDED. THE COMMENTARY INCLUDED SECTIONS ON TECHNOLOGIES, AIR QUALITY, WATER, SOLID WASTES, HEALTH, ECONOMIC IMPACTS, AND SOCIOECONOMIC IMPACTS. FINALLY, AN EXECUTIVE SUMMARY (26 PAGES) WAS PREPARED. A SUMMARY OF POLICY IMPLICATIONS IS SCHEDULED FOR COMPLETION IN NOVEMBER 1980.

REPORTS AND PUBLICATIONS
IDENTIFICATION OF SYNTHETIC FUEL IMPACTS: A PRELIMINARY ASSESSMENT: EXECUTIVE SUMMARY / IDENTIFICATION OF SYNTHETIC FUEL IMPACTS

PUBLICATIONS ADDRESS
DEPT. OF NATURAL RESOURCES & CONSERVATION, HELENA, MT / LIBRARY CHECKOUT THROUGH: ENVIRONMENTAL STUDIES LIBRARY,

3.1 ALCOHOL FUELS

00001646

PROJECT TITLE
FEASIBILITY STUDY FOR ALTERNATE FUEL PRODUCTION FROM BIOMASS RESOURCES
SOURCE NUMBER
DE-FG01-80PA50361
INVESTIGATOR(S)
JAC BYE
RESEARCH INSTITUTION
NORTH CENTRAL CONSULTANTS, LTD.
P. O. BOX 1670
1201 SIXTH AVENUE N.E.
JAMESTOWN, ND 58401
COOPERATOR
RAPHAEL KATZEN ASSOCIATES, CINCINNATI, OH 45201
TOUCHE-ROSS AND COMPANY, MINNEAPOLIS, MN 55402
PRIMARY SPONSOR
DAWN ENTERPRISES, INC.
BOX 468
WALHALLA, ND 58262
PRIMARY FUNDING AMOUNT
$220,167
TIME FRAME
AUGUST 28, 1980 TO APRIL 28, 1981
LOCATION
ND - PEMBINA CO.
ABSTRACT

THE PROPOSED PROJECT WILL BE A 50 MM USGPY ANHYDROUS ALCOHOL PLANT TO BE LOCATED AT WALHALLA IN NORTHEASTERN NORTH DAKOTA. IT IS THE INTENT TO UTILIZE LOCALLY GROWN WHEAT, OTHER SMALL GRAINS AND POTATOES AS THE RAW MATERIAL TO PRODUCE A MOTOR FUEL GRADE ALCOHOL THROUGH A FERMENTATION AND DISTILLATION PROCESS. NORTH DAKOTA LIGNITE COAL WILL BE USED AS THE PRIMARY ENERGY SOURCE TO EXTRACT THE ALCOHOL FROM THE RAW MATERIAL. IT WILL ADDRESS THE FOLLOWING: (1) AVAILABILITY OF RAW MATERIAL; (2) SUITABILITY OF THE RAW MATERIAL TO PRODUCE MOTOR FUEL GRADE ALCOHOL; (3) AVAILABILITY OF NORTH DAKOTA LIGNITE COAL AS THE PRIMARY ENERGY SOURCE; (4) ANTICIPATED MARKET FOR THE BYPRODUCTS WHICH WILL BE DISTILLED DRY GRAIN FEEDSTOCK AND CARBON DIOXIDE; (5) ANTICIPATED START-UP COST OF THE FACILITY; (6) AVAILABILITY OF SUFFICIENT WORK FORCE; (7) ENVIRONMENTAL, SAFETY, HEALTH AND SOCIOECONOMIC FACTORS TO BE CONSIDERED; (8) TRANSPORTATION REQUIREMENTS AND AVAILABILITY AND (9) THE ECONOMICS OF PRODUCING MOTOR FUEL GRADE ALCOHOL BASED ON THE ABOVE CONSIDERATIONS.

THIS PROPOSED PROJECT WILL BE LOCATED NEAR THE NORTHERN END OF THE RED RIVER VALLEY WHERE WHEAT, OTHER SMALL GRAINS AND POTATOES HAVE BEEN HISTORICALLY AND SUCCESSFULLY GROWN. IN 1979, SUCH A SURPLUS OF POTATOES WERE GROWN IN THIS AREA, FOR WHICH THERE WAS NO MARKET. THAT THE FEDERAL GOVERNMENT AS IN YEARS PAST THROUGH ITS USDA POTATO DIVERSION PROGRAM GAVE FINANCIAL ASSISTANCE TO AREA FARMERS TO HAUL THEIR SURPLUS POTATOES BACK TO THE FIELDS FOR FEEDSTOCK AND/OR PLOW-DOWN. ACCORDING TO U.S.D.A. FIGURES 2,500,000 CWT. OF POTATOES WERE DISPOSED OF BY THIS MEANS IN THE NORTHERN VALLEY AREA IN 1979 WITH 310,000 CWT. BEING DISPOSED OF IN PEMBINA COUNTY ALONE.

NORTH CENTRAL CONSULTANTS, LTD., THE PRIME CONSULTANT, IS AN ARCHITECTURAL-ENGINEERING FIRM HEADQUARTERED IN JAMESTOWN, NORTH DAKOTA, AND WILL BE RESPONSIBLE FOR THE OVERALL DESIGN AND COORDINATION OF THE PROJECT. NORTH CENTRAL CONSULTANTS, LT HAS RETAINED THE FIRM OF TOUCHE-ROSS TO ASSIST IN THE ECONOMIC AND MARKETING ASPECTS OF THE PROJECT AND THE FIRM OF RAPHAEL KATZEN ASSOCIATES, EXPERTS IN THE FERMENTATION AND DISTILLATION PROCESS, TO PROVIDE THE EXPERTISE IN THIS AREA.

00001647

PROJECT TITLE
WET DISTILLER'S GRAINS FOR FEEDLOT CATTLE
SOURCE NUMBER
13-040
INVESTIGATOR(S)
S. D. FARLIN
RESEARCH INSTITUTION
UNIV. OF NEBRASKA
DEPT. OF ANIMAL SCIENCE
237 MBH
LINCOLN, NE 68583
PRIMARY SPONSOR
NEBRASKA AG. PRODUCTS IND. UTILIZATION COMMITTEE
301 CENTENNIAL MALL SOUTH
P. O. BOX 94831
LINCOLN, NE 68509
PRIMARY FUNDING AMOUNT
$10,000
TIME FRAME
JANUARY 1980 TO JANUARY 1981
LOCATION
NE
ABSTRACT

PROBLEM: ALCOHOL PRODUCTION WILL RESULT IN LARGE SUPPLIES OF DISTILLER'S WET GRAINS. OBJECTIVE: TO UTILIZE BYPRODUCT IN WET FORM AT HIGH LEVELS FOR BEEF FEEDING TO REDUCE PROCESSING COSTS AND MAXIMIZE FEEDING VALUE. APPROACH: WET DISTILLER'S GRAIN WILL BE SUBSTITUTED AT 0, 25, 50, AND 75% FOR CORN GRAIN IN BEEF FINISHING RATION. MEASUREMENTS WILL BE MADE ON FEED INTAKE, RATE OF GAIN AND FEED EFFICIENCY.

00001648

PROJECT TITLE
PRECIPITATION OF ETHANOL STILLAGE TO IMPROVE PROTEIN AND RECYCLE WATER
SOURCE NUMBER
CSRS 616-15-157
INVESTIGATOR(S)
TERRY KLOPFENSTEIN / ROBERT A. BRITTON
RESEARCH INSTITUTION
UNIV. OF NEBRASKA-LINCOLN
DEPT. OF ANIMAL SCIENCE
236 MARVEL BAKER HALL
LINCOLN, NE 68583
PRIMARY SPONSOR
U. S. DEPT. OF AGRICULTURE
PRIMARY FUNDING AMOUNT
$100,000
TIME FRAME
JULY 1, 1980 TO JUNE 30, 1982
LOCATION
NE
ABSTRACT

OBJECTIVES: (1) DEVELOP A SIMPLE METHOD OF PRECIPITATING THE PROTEINS IN DISTILLERS SOLUBLES; (2) CLARIFY DISTILLERS SOLUBLE SO THAT THE WATER COULD BE RECYCLED; (3) INCREASE THE PROTEIN VALUE OF DISTILLERS SOLUBLES FOR RUMINANTS; (4) DETERMINE THE PRECISE PROTEIN BYPASS AND AMINO ACID AVAILABILITY VALUES OF DISTILLERS GRAINS, DISTILLERS SOLUBLES AND CORN GLUTEN MEAL FOR RUMINANTS; AND (5) DEVELOP A SYSTEM OF INCORPORATING DISTILLERS GRAINS, DISTILLERS SOLUBLES AND CORN GLUTEN MEAL INTO RUMINANT RATIONS TO OPTIMIZE THEIR VALUE.

PROCEDURES: LABORATORY: WHOLE STILLAGE AND THIN STILLAGE (DISTILLERS SOLUBLES) WILL BE TREATED BY VARIOUS TECHNIQUES TO DETERMINE THE MOST EFFECTIVE MEANS OF PRECIPITATING THE PROTEIN PRIMARILY YEAST CELLS. TWO PRIMARY CRITERIA WILL BE USED TO EVALUATE THE EFFECTIVENESS OF THE PREVIOUSLY MENTIONED PRECIPITANTS. FIRST WILL BE THE ABILITY TO REMOVE PROTEIN FROM THE STILLAGE. SECONDLY, THE PRECIPITATED PROTEINS BOTH WET AND DRIED WILL BE EVALUATED FOR PROTEIN DEGRADABILITY. THESE TECHNIQUES WILL ESTIMATE THE VALUE OF THE PROTEIN FOR RUMINANTS THE VARIOUS PROTEINS PRODUCED AS BYPRODUCTS TO ETHANOL PRODUCTI FROM GRAIN WILL BE EVALUATED WITH BEEF CALVES. THE PROTEINS WILL INCLUDE DISTILLERS GRAINS, DISTILLERS SOLUBLES AND PROTEINS PRECIPITATED FROM DISTILLERS SOLUBLES WITH BENTONITE OR OTHER PRACTICAL PROCEDURES. ALSO INCLUDED WILL BE CORN GLUTEN MEAL WHICH IS THE PROTEIN SOURCE PRODUCED WHEN GRAIN IS WET MILLED PRIOR TO FERMENTATION.

00001649

PROJECT TITLE
STUDY OF THE PRODUCTION OF ETHANOL FROM SUGAR BEETS FOR USE AS A MOTOR FUEL
SOURCE NUMBER
AC02-80CS83010
INVESTIGATOR(S)
H. W. BAIRD
RESEARCH INSTITUTION
SCOTTSBLUFF-GERING PAYROLL DEV. FOUNDATION, INC.
1419 BROADWAY, P. O. BOX 167
SCOTTSBLUFF, NE 69361
PRIMARY SPONSOR
U. S. DEPT. OF ENERGY
CHICAGO OPERATIONS OFFICE
CHICAGO, IL
PRIMARY FUNDING AMOUNT
NOT AVAILABLE
TIME FRAME
FEBRUARY 1980 TO SEPTEMBER 1980
LOCATION
NE
ABSTRACT

SGPDF IN CLOSE COOPERATION WITH GREAT WESTERN SUGAR COMPANY AND THE UNIVERSITY OF NEBRASKA PANHANDLE STATION WORKS ON CONVERSION, OR PARTIAL CONVERSION, OF EXISTING BEET SUGAR FACTORIES TO PRODUCTION OF ANHYDROUS ETHANOL ALCOHOL FOR USE AS A MOTOR FUEL. THE TECHNOLOGY FOR CONVERSION OF SUGAR BEETS TO DISTILLERS' PULP AND ETHYL ALCOHOL EXISTS. HYBRID BEETS GROWN FOR ALCOHOL, WITH IMPROVING TECHNOLOGIES, COMBINE TO ADD ECONOMIC VIABILITY TO SUCH AN OPERATION AND REDUCE DEPENDENCE ON FOREIGN FUEL SOURCES. SGPDF WILL ENGAGE AN ENGINEERING FIRM TO PROVIDE A STUDY FOR THE NECESSARY WORK TO PERFORM THE FOLLOWING TASKS: (1) SITE SELECTION CRITERIA, STORAGE, AND PROCESS SYSTEM; (2) RAW MATERIAL; (3) LABOR AVAILABILITY AND TRAINING; (4) UTILITY REQUIREMENTS AND PROCESS HEAT SOURCES; (5) CONSTRUCTION AND FACILITY MODIFICATION COST STRUCTURE; (6) OPERATIONAL COST STRUCTURE; (7) ENERGY BALANCE FOR PROCESS; (8) P AND L STATEMENTS FOR 0 TO 5 YEARS, PLUS CASH FLOW; AND (9) BALANCE SHEETS FOR 0 TO 5 YEARS WITH RETURN ON INVESTMENT CALCULATIONS. THIS CONCEPTUAL ENGINEERING STUDY WILL LEAD TO THE NEXT STEP OF TURN-KEY ENGINEERING DESIGN. THE FINAL STEP IS ACTUAL MODIFICATION OF FACILITIES AND ADDITION OF CONVERSION EQUIPMENT AND STORAGE FACILITIES.

00001650

PROJECT TITLE
NON-PETROLEUM FUELS FOR POWER UNITS USED BY AGRICULTURE
SOURCE NUMBER
ND-01437
INVESTIGATOR(S)
K. R. KAUFMAN

RESEARCH INSTITUTION
NORTH DAKOTA STATE UNIV.
DEPT. OF AG. ENG.
FARGO, ND
COOPERATOR
U. S. DEPT. OF AGRICULTURE
NORTH DAKOTA COOP. STATE RESEARCH SERVICE
PRIMARY FUNDING AMOUNT
NOT AVAILABLE
TIME FRAME
AUGUST 1, 1978 TO SEPT. 30, 1983
LOCATION
ND
ABSTRACT

OBJECTIVE: EVALUATE THE USE OF NON-PETROLEUM FUELS SUCH AS ETHYL ALCOHOL, METHYL ALCOHOL AND METHANE FOR INTERNAL COMBUSTION ENGINES. APPROACH: TRACTOR ENGINES WILL BE TESTED IN THE LABORATORY TO DETERMINE THE EFFECTS OF SUBSTITUTING ALCOHOL-FUEL MIXTURES FOR TRACTOR FUEL. BOTH GASOLINE AND DIESEL ENGINES WILL BE STUDIED. ROAD TESTS WILL BE MADE WITH AUTOMOBILES TO DETERMINE THE EFFECTS OF SUBSTITUTING GASOLINE ALCOHOL BLENDS FOR GASOLINE. IN ALL TESTS, COMPARISONS WILL BE MADE BETWEEN THE ENERGY CONTENT OF THE ALCOHOL-FUEL BLEND AND THE FUEL CONSUMPTION OF THE ENGINE. NEXT, ENGINES WILL BE MODIFIED AND EVALUATED FOR PERFORMANCE AND EMISSIONS WHILE USIN ALCOHOL-FUEL BLENDS. PROGRESS: TESTS WERE CONDUCTED TO DETERMINE HOW ALCOHOL PERFORMS IN ENGINES. GASOLINE AND DIESEL TRACTOR ENGINES AND AUTOMOBILES WERE TESTED. THE ENGINES WERE ADJUSTED TO FACTORY SPECIFICATIONS AND ALL TESTS WERE RUN AT THESE SETTINGS. THE GASOLINE TRACTOR ENGINE WAS AN INTERNATIONAL HARVESTER 606. IT WAS CONNECTED TO A PTO DYNAMOMETER AND TESTS WERE RUN AT PARTIAL AND FULL LOADS. A FORD 800 WAS USED FOR THE DIESEL ENGINE TESTS. IT WAS ALSO CONNECTED TO A PTO DYNAMOMETER. AUTOMOBILES TESTED ON THE ROAD WERE 1976 FORD TORINOS WITH 351 CUBIC INCH DISPLACEMENT V-8 ENGINES. TESTS WERE RUN TO COMPARE THE BENEFITS OF USING 190-PROOF ETHAN AS COMPARED TO 100 PROOF ETHANOL IN THE ALCOHOL-GASOLINE BLENDS TO ACHIEVE A SATISFACTORY MIX AND ONE THAT WILL NOT SEPARATE OUT OVER TIME IT WAS FOUND THAT THE ALCOHOL PORTION MUST BE ESSENTIALLY PURE (200 PROOF). VARIOUS BLENDS OF ETHYL ALCOHOL AND UNLEADED GASOLINE WERE USED IN THE TRACTOR ENGINES. AS THE QUANTITY OF ALCOHOL BLENDED WITH THE UNLEADED GASOLINE WAS INCREASED, THE MAXIMUM HORSEPOWER WHICH THE ENGINE WAS CAPABLE OF PRODUCING DECREASED. IN ADDITION, THE FUEL EFFICIENCY MEASURED IN KW-HR/LITER ALSO DECREASED. THERMAL EFFICIENCY REMAINED APPROXIMATELY CONSTANT. AUTOMOBILE TESTS SHOWED THAT MILEAGE MEASURED IN KILOMETERS PER LITER DECREASED 3% WHILE USING GASOHOL, A BLEND OF 90% UNLEADED GASOLINE AND 10% ETHANOL

00001651

PROJECT TITLE
PRODUCTION OF ALCOHOL FUELS FROM LIGNO-CELLULOSIC CROP RESIDUES AND DAMAGED CEREAL STARCHES
SOURCE NUMBER
SD-00885
INVESTIGATOR(S)
P. R. MIDDAUGH
RESEARCH INSTITUTION
SOUTH DAKOTA STATE UNIV.
DEPT. OF MICROBIOLOGY
BROOKINGS, SD
PRIMARY SPONSOR
U. S. DEPT. OF AGRICULTURE
SOUTH DAKOTA COOP. STATE RESEARCH SERVICE
PRIMARY FUNDING AMOUNT
NOT AVAILABLE
TIME FRAME
OCTOBER 10, 1979 TO SEPT. 30, 1984
LOCATION
SD
ABSTRACT

OBJECTIVE: USE THE EXISTING PILOT PLANT TO DETERMINE THE ACTUAL PRODUCTION COSTS OF PRODUCING 190 PROOF, 96% ALCOHOL FUE AND THE NET ENERGY BALANCE OF PRODUCING A GALLON OF FUEL ALCOHO AS A FARM AND COMMUNITY SCALE PLANT USING CORN AND GRAINS, ESPECIALLY DAMAGED AND HIGH MOISTURE CROPS, AND THE RECOVERY COSTS FOR CONCENTRATING THE BYPRODUCT HIGH PROTEIN ANIMAL FEED FOR WET FEEDING OF LIVESTOCK. USE NEWLY DEVELOPED TECHNOLOGY FOR DETERMINING THE COST OF FUEL ALCOHOL PER GALLON AND THE INPUT-OUTPUT NET ENERGY BALANCE FOR CONVERSION OF CELLULOSIC CROP RESIDUES INCLUDING FARM CROP RESIDUES, STRAWS, CORN STOVER, SAWDUST, BEET PULP, ETC. AND FOR COMMUNITIES, OF CONVERTING LAND-FILL PLUGGING WASTE PROPER AND MATERIALS SUCH AS ELEVATOR GRAIN DUST TO FUEL ALCOHOL. PERFECT AND DETERMINE THE COST OF PRODUCING CELLULOSE ENZYMES TO CARRY OUT THE CELLULOSE CONVERSIONS TO SUGARS AND TO FUEL ALCOHOL FOR OBJECTIVE 2. COMMERCIAL CELLULOSE IS AVAILABLE AT A PROHIBITIVELY HIGH COST. THE EXPERIMENTS WOULD BE STATISTICALLY DESIGNED AND EVALUATED.

00001652

PROJECT TITLE
PYROLYTIC CONVERSION OF LIGNOCELLULOSIC MATERIALS
INVESTIGATOR(S)
F. SHAFIZADEH
RESEARCH INSTITUTION
UNIV. OF MONTANA
DEPT. OF CHEMISTRY & SCHOOL OF FORESTRY
MISSOULA, MT 59801
PRIMARY SPONSOR
NATIONAL SCIENCE FOUNDATION
PRIMARY FUNDING AMOUNT
$352,000

TIME FRAME
JULY 1978 TO DECEMBER 1982
LOCATION
MT
ABSTRACT

OBJECTIVE: EXAMINE FEASIBLE METHODS FOR CONVERTING CELLULOSIC MATERIALS TO GLUCOSE AND GLUCOSE DERIVATIVES THROUGH PYROLYTIC (THERMAL) MEANS. THE IMPENDING SHORTAGE OF CHEMICALS AND OTHER MATERIALS AND THE LIMITED SUPPLY OF PETROLEUM NECESSITATE NEW EFFORTS FOR EFFICIENT UTILIZATION OF RENEWABLE LIGNOCELLULOSIC MATERIALS. PYROLYSIS, THE CONTROLLED THERMAL TREATMENT OF MATERIALS, PROVIDES AN EFFICIENT PROCESS FOR CONVERTING LIGNOCELLULOSE INTO A WIDE RANGE OF USEFUL PRODUCTS INCLUDING SUGARS, CHEMICALS, SOLVENTS, CHARCOAL AND FUEL. THE OVERALL OBJECTIVE OF THIS PROJECT IS TO EXAMINE PROMISING ROUTES FOR CONVERTING LIGNOCELLULOSIC MATERIALS TO USEFUL CHEMICALS THROUGH PYROLYTIC MEANS.

SPECIFIC OBJECTIVES ARE TO: (1) INVESTIGATE THE THERMAL DEPOLYMERIZATION OF CELLULOSE IN WOOD AND AGRICULTURAL MATERIAL INTO LEVOGLUCOSAN (AN ANHYDRIDE OF GLUCOSE); (2) EXAMINE, IN AN INTEGRATED FASHION, THE PHYRLYTIC PROCESSES FOR PRODUCING FURFURAL, ACETIC ACID, METHANOL AND CARBON AS BYPRODUCTS FROM THE HEMICELLULOSE AND XYLAN COMPONENTS OF THE RAW MATERIALS; (3) ESTABLISH THE APPLICATION AND UTILITY OF THE NOVEL PYROLYTIC PRODUCTS, ESPECIALLY LEVOGLUCOSAN AND LEVOGLUCOSENONE AND (4) INVESTIGATE THE USE OF THERMAL TREATMENTS TO INCREASE THE SUSCEPTIBILITY OF CELLULOSE TO ENZYME HYDROLYSIS.

00001653

PROJECT TITLE
CORRELATION AMONG WATER CHEMISTRY DATA, REGIONAL HEAT FLOW AND THE GEOTHERMAL POTENTIAL OF WESTERN UNITED STATES
SOURCE NUMBER
14-08-0001-G-406
INVESTIGATOR(S)
C. A. SWANBERG
RESEARCH INSTITUTION
NEW MEXICO STATE UNIV.
DEPT. OF PHYSICS & EARTH SCIENCES
UNIVERSITY PARK
LAS CRUCES, NM 88003
PRIMARY SPONSOR
U. S. GEOLOGICAL SURVEY, GEOLOGIC DIV.
12201 SUNRISE VALLEY DR.
RESTON, VA 22092
PRIMARY FUNDING AMOUNT
1979: $63,442
TIME FRAME
JANUARY 1977 TO CONTINUING
LOCATION
AZ - NM - CA - ID - WY - UT - MT - NV - WA
ABSTRACT

A MASSIVE SEARCH OF WATER CHEMISTRY DATA FOR INFORMATION PERTINENT TO EXPLORATION FOR AND DEVELOPMENT OF GEOTHERMAL RESOURCES WILL BE COMPLETED FOR WESTERN UNITED STATES. GEOTHERMOMETERS (SILICA AND NA-K-CA), FLUORIDE, BORON, IN SITU TEMPERATURE, AND TOTAL DISSOLVED SOLIDS ARE OF PARTICULAR INTEREST. ABOUT 250,000 WATER CHEMISTRY ANALYSES AVAILABLE IN THE COMPUTERIZED DATA BANK OF THE USGS WATER RESOURCES DIVISION HAVE NEVER BEEN SYSTEMATICALLY EXAMINED FOR GEOTHERMAL INDICATORS.

00001654

PROJECT TITLE
SPECIAL GEOTHERMAL GROUND NOISE EXPERIMENT
SOURCE NUMBER
14-08-0001-16315
INVESTIGATOR(S)
E. A. PAGE
RESEARCH INSTITUTION
ENSCO INC.
5408A PORT ROYAL ROAD
SPRINGFIELD, VA 22151
PRIMARY SPONSOR
U. S. GEOLOGICAL SURVEY, GEOLOGIC DIV.
12201 SUNRISE VALLEY DR.
RESTON, VA 22092
PRIMARY FUNDING AMOUNT
1979: $25,000
TIME FRAME
JULY 1978 TO CONTINUING
LOCATION
CA - UT - WY
ABSTRACT

INVESTIGATION OF A SEISMIC ARRAY TECHNIQUE TO DETECT AND LOCATE GROUND NOISE SOURCES HAS DEMONSTRATED THE FEASIBILITY OF OBTAINING ACCURATE GROUND NOISE SOURCE DISTRIBUTIONS IN GEOTHERMAL REGIONS. FURTHER EFFORT IS NECESSARY TO ESTABLISH THE UNDERLYING GEOPHYSICS AND DEMONSTRATE THE GENERAL APPLICABILITY OF THE TECHNIQUE.

THE OBJECTIVES OF THIS RESEARCH ARE TO EVALUATE SEISMIC ARRAY TECHNIQUES FOR MAPPING SIESMIC ACTIVITY IN GEOTHERMAL REGIONS THROUGH SPECIFIC ANALYSES OF SEISMIC DATA RECORDED NEAR OLD FAITHFUL GEYSER, YELLOWSTONE PARK, WYOMING. SEISMIC ACTIVITY MAPS WILL BE COMPUTED, CENTERED ON OLD FAITHFUL, USING SUCCESSIVE FIVE MINUTE INTERVALS OF DATA COVERING 25 MINUTES BEFORE ERUPTION TO 10 MINUTES AFTER. THIS WILL BE DONE FOR DATA RECORDED AT BOTH ARRAY LOCATIONS FOR SEVERAL ERUPTION CYCLES. THE RESULTING SEISMIC ACTIVITY MAPS WILL THEN BE EXAMINED TO DETERMINE WHAT FEATURES OF THIS SYSTEM CAN BE SEISMICALLY IDENTIFIED.

00001655

PROJECT TITLE
EVALUATION OF NOBLE GASES IN THE EXPLORATION FOR GEOTHERMAL ENERGY
SOURCE NUMBER
14-08-0001-G-546
INVESTIGATOR(S)
E. MAZOR
RESEARCH INSTITUTION
WEIZMANN INST. OF SCIENCE
DEPT. OF ISOTOPE
P. O. BOX 26
REHOVOT, ISRAEL
PRIMARY SPONSOR
U. S. GEOLOGICAL SURVEY, GEOLOGIC DIV.
12201 SUNRISE VALLEY DR.
RESTON, VA 22092
PRIMARY FUNDING AMOUNT
1979: $18,791
TIME FRAME
AUGUST 1978 TO CONTINUING
LOCATION

CA - WY - MEXICO

ABSTRACT

CASE STUDIES WITH QUANTITATIVE PROCESSING OF NOBLE GAS DATA ARE REQUIRED TO DEMONSTRATE THEIR USEFULNESS AS TRACERS IN GEOTHERMAL FIELDS. TO REACH THIS OBJECTIVE, SAMPLES OF GEOTHERMAL FLUIDS HAVE BEEN COLLECTED SIMULTANEOUSLY WITH SAMPLES BY OTHER INVESTIGATORS FOR ANALYSES OF A HOST OF OTHER GEOCHEMICAL AND ISOTOPIC PARAMETERS. THE NOBLE GAS DATA WILL BE INTERPRETED NOT ONLY AS AN ENTITY BUT ALSO IN CORRELATION TO THE OTHER MEASURED CHEMICAL AND ISOTOPIC TRACERS. SAMPLES WERE COLLECTED FROM YELLOWSTONE (23 SAMPLES), LASSEN (9), CERRO PRIETO (18), THE GEYSERS (14), AND OTHER AREAS (13). NOBLE GASES WERE EXTRACTED, PURIFIED AND TRANSFERRED INTO BREAK SEAL TUBES MADE OF HELIUM-TIGHT GLASS FROM THESE SAMPLES.

THESE NOBLE GAS DATA WILL SERVE TO EVALUATE POTENTIAL USES OF NOBLE GAS STUDIES IN THE EXPLORATION FOR GEOTHERMAL ENERGY INCLUDING THE FOLLOWING: 1. THE BEHAVIOR OF THE ATMOSPHERIC AND RADIOGENIC NOBLE GASES FROM YELLOWSTONE WILL BE CHECKED TO DETERMINE IF MANY OF THE SPRINGS AND FUMAROLES ARE A RESULT OF EVOLUTIONARY PROCESSES ACTING UPON ONE ORIGINAL BRINE. 2. ISOTOPIC AND CHEMICAL CHANGES IN STEAM SAMPLES COLLECTED AT VARIOUS WELL HEAD DIAMETERS AT THE GEYSERS HAVE INDICATED DIRECTION OF FLOW IN THE FIELD AND OTHER PARAMETERS. THE DISTRIBUTION OF NOBLE GASES IN SIMILAR SAMPLES WILL COMPLEMENT THESE OBSERVATIONS. 3. A MODE EMERGED OF ONE TYPE OF BRINE WIT TEMPERATURE ZONATION, WHICH GETS FRACTIONATED DURING EXPLOITATION. NOBLE GAS ANALYSIS SHOULD INCREASE UNDERSTANDING OF THE SYSTEM. 4. NEW NOBLE GASES SOLUBILITY DATA (FROM 0-350 DEGREES C) WILL BE APPLIED TO INTERPRET OBSERVED DATA IN TERMS OF: A. MECHANISMS OF STEAM SEPARATION IN THE GEOTHERMAL SETTINGS, B. GEOTHERMOMETRIC INFORMATION REGARDING THE TEMPERATURE AT WHICH BOILING OCCURS, AND C. DEGREES OF MIXING WITH SHALLOWE AND COLDER WATER.

00001656

PROJECT TITLE
NORTH DAKOTA COMMERCIALIZATION OF GEOTHERMAL ENERGY RESOURCES
SOURCE NUMBER
FC07-79ID12011
INVESTIGATOR(S)
R. A. GAUGLER
RESEARCH INSTITUTION
NORTH DAKOTA STATE NATURAL RESOURCES COUNCIL
STATE CAPITOL
BISMARCK, ND 58505
PRIMARY SPONSOR
U. S. DEPT. OF ENERGY
IDAHO OPERATIONS OFFICE
IDAHO FALLS, ID 83401
PRIMARY FUNDING AMOUNT
NOT AVAILABLE
TIME FRAME
AUGUST 1979 TO CONTINUING
LOCATION
ND

ABSTRACT

THE NORTH DAKOTA GEOTHERMAL COMMERCIALIZATION PROGRAM IS IN THE INITIAL STAGES OF DEVELOPMENT AND IS BEING CONDUCTED ACCORDING TO DEPARTMENT OF ENERGY REQUIREMENTS. EIGHT SUBSTATE GEOGRAPHI AREAS HAVE BEEN IDENTIFIED AND CHARACTERIZED. GEOTHERMAL ENERG POTENTIAL WILL CONTINUE TO BE ANALYZED AND CORRELATED WITH SIMILAR INFORMATION IN THE OTHER STATES OF THE REGION. THREE SITE-SPECIFIC DEVELOPMENT AND COMMERCIALIZATION PLANS ARE BEING FORMULATED AND DESCRIBED AS A FUNCTION OF TIME BETWEEN NOW AND THE YEAR 2020. INFORMATION GENERATED WILL BE PROVIDED FOR STAT AND REGIONAL ECONOMIC AND ENERGY ANALYSIS. A STATE INSTITUTION AND ECONOMIC ASSESSMENT WILL BE MADE OUTLINING INCENTIVES AND DETERRENTS, ECONOMIC AND INSTITUTIONAL FACTORS, AND MARKET AND USE POTENTIALS. AN OUTREACH PROGRAM HAS BEEN ORGANIZED AND IS BEING CONDUCTED TAKING ADVANTAGE OF THE WEES.

00001657

PROJECT TITLE
DIRECT UTILIZATION OF GEOTHERMAL ENERGY FOR PHILIP SCHOOLS
SOURCE NUMBER
ET-78-F-07-1728
INVESTIGATOR(S)
C. A. MAXON
RESEARCH INSTITUTION
HAAKON SCHOOL DISTRICT NO. 27-1
PHILIP, SD 57567
PRIMARY SPONSOR
U. S. DEPT. OF ENERGY
DIV. OF GEOTHERMAL ENERGY
WASHINGTON, DC
PRIMARY FUNDING AMOUNT
NOT AVAILABLE
TIME FRAME
JULY 1978 TO SEPTEMBER 1980
LOCATION
SD - HAAKON CO.

ABSTRACT

THE PROJECT OBJECTIVE IS TO PROVIDE SPACE HEATING AND DOMESTIC HOT WATER TO THE PHILIP SCHOOL BUILDINGS. THREE BUILDINGS IN THE PHILIP SCHOOL COMPLEX WILL BE RETROFITTED TO USE GEOTHERMAL ENERGY FOR SPACE HEATING. THE SCOPE OF THE PROJECT REQUIRES THE DRILLING OF A WELL INTO THE MADISON AQUIFER AND THE CONVERSION OF THE PRESENT STEAM AND ELECTRICAL HEATING SYSTEMS TO HOT WATER SYSTEMS. INSTRUMENTATION WILL BE INSTALLED TO MONITOR THE SYSTEM PERFORMANCE AND TO PROVIDE DATA FOR OTHER POTENTIAL USERS.

00001658

PROJECT TITLE
SOLAR ENERGY APPLICATION FOR AGRICULTURE
SOURCE NUMBER
133-80-06
INVESTIGATOR(S)
O. S. GILBERTSON / ALLEN BLEICK / ALLAN VYHNALEK
RESEARCH INSTITUTION
UNIV. OF NEBRASKA
DEPT. OF AG. EDUCATION
302 AG. HALL
LINCOLN, NE 68583
COOPERATOR
NEBRASKA STATE ENERGY OFFICE, LINCOLN, NE
PRIMARY SPONSOR
NEBRASKA STATE DEPT. OF VOC. EDUCATION
6TH FLOOR, STATE OFFICE BUILDING
LINCOLN, NE 68583
PRIMARY FUNDING AMOUNT
$5,000
TIME FRAME
FEBRUARY 15, 1980 TO AUGUST 15, 1980
LOCATION
NATIONWIDE APPLICABILITY
ABSTRACT

STATEMENT OF THE PROBLEM: TECHNOLOGICAL CHANGES ARE CONSTANTLY OCCURRING WITHIN THE FIELD OF AGRICULTURE. THESE CHANGES ARE OCCURRING RAPIDLY IN THE AREAS RELATED TO ENERGY. ALTERNATIVE ENERGY SOURCES AND ENERGY CONSERVATION ARE EMERGING AS HIGH PRIORITIES IN AGRICULTURE. THE INCREASING SHORTAGE OF FOSSIL FUELS IS RESULTING IN CONSIDERABLE CONCERN TO AGRICULTURE BECAUSE OF ITS DEPENDENCE UPON FOSSIL FUELS IN THE PRODUCTION OF FOOD AND FIBER. THE CURRICULUM IN NEBRASKA VOCATIONAL AGRICULTURE PROGRAMS SHOULD REFLECT CHANGES IN TECHNOLOGY AS IT RELATES TO APPLYING SOLAR ENERGY TO AGRICULTURE. IF UNITS OF INSTRUCTION WERE AVAILABLE ON AGRICULTURAL USES OF SOLAR ENERGY, MANY VOCATIONAL AGRICULTURE TEACHERS WOULD INCORPORATE THIS INTO THEIR CURRICULUM. OBJECTIVES OF THE PROJECT: MODIFY THE "UNDERSTANDING SOLAR ENERGY SYSTEMS" AS DEVELOPED IN NEW MEXICO, TO PROVIDE THE PRACTICAL APPLICATION TO AGRICULTURE. DEVELOP INTRODUCTORY UNIT(S) ON ALTERNATIVE ENERGY AND/OR AGRICULTURAL ENERGY MANAGEMENT. PROCEDURES: HAVE SOLAR ENERGY SPECIALISTS REVIEW EXISTING CURRICULUM, PROVIDE IDEAS FOR JOB SHEETS AND PROJECTS APPLICABLE TO AGRICULTURE. THEN DEVELOP AGRICULTURAL ILLUSTRATIONS AND EXAMPLES, REWRITE EXISTING UNITS AND WRITE NEW UNITS APPLICABLE TO SOLAR ENERGY USE IN AGRICULTURE. CONTRIBUTION TO AGRICULTURE: THE UNITS OF INSTRUCTION SHOULD BECOME INCORPORATED INTO THE NEBRASKA VOCATIONAL AGRICULTURE CURRICULUM. POTENTIALLY THESE UNITS COULD BE TAUGHT IN EVERY NEBRASKA SECONDARY AND POST-SECONDARY VOCATIONAL AGRICULTURE DEPARTMENT.

00001659

PROJECT TITLE
PHOTOVOLTAIC POWER FOR AGRICULTURAL APPLICATIONS
SOURCE NUMBER
NEBRASKA EX. STA. 11-30
INVESTIGATOR(S)
PAUL E. FISCHBACH / W. E. SPLINTER / ALLEN EDISON /
T. L. THOMPSON
RESEARCH INSTITUTION
UNIV. OF NEBRASKA
DEPT. OF AG. ENG.
LINCOLN, NE 68583
COOPERATOR
MASSACHUSETTS INSTITUTE OF TECH.
LINCOLN LAB
LEXINGTON, MA
PRIMARY SPONSOR
U. S. DEPT. OF ENERGY
PRIMARY FUNDING AMOUNT
$437,167
TIME FRAME
MAY 1977 TO DECEMBER 1981
LOCATION
AZ - CA - NE - TX
ABSTRACT

THE VIABILITY OF SOLAR PHOTOVOLTAIC (PV) POWER SYSTEMS IS CONSIDERED FOR TWELVE FARM IRRIGATION SYSTEMS IN EIGHT MAJOR IRRIGATION STATES. FOUR OF THE STATES--ARIZONA, CALIFORNIA, NEBRASKA, TEXAS--ARE THE MAJOR U. S. CONSUMERS OF PUMPED AND APPLIED IRRIGATION WATER. PRIMARY ENERGY REQUIREMENTS OF IRRIGATION SYSTEMS SHOW THAT AUTO-SURFACE, GATED PIPE SYSTEMS WITH WATER RE-USE, AND TRICKLE/DRIP SYSTEMS HAVE THE MOST COMPATIBLE LOW-ENERGY REQUIREMENTS TO APPLY WATER WITH PV ARRAY PUMPING ENERGY REQUIRED BY PRESENT PV ARRAYS RANGES FROM 0.5-0.7 MILLION BTUS TO LIFE AND APPLY ONE-ACRE-FOOT OF WATER FROM A STATIC 50-FOOT LIFT BY LOW-LIFT IRRIGATION SYSTEMS. SOLAR-CELL ARRAYS INTEGRATED INTO FARM SYSTEMS CAN BE SUBSTITUTED FOR THE ESCALATING COSTS OF OTHER POWER SOURCES. THE LOW POWER OF PV ARRAYS CAN BE KEYED TO THE ENERGY REQUIREMENTS OF EXTENSIVE AUTOMATION IN IRRIGATION AND CO-LINKED WITH OTHER LOW-ENERGY FARM USES.

THIS PROJECT IS PART OF "PHOTOVOLTAIC POWERED IRRIGATION EXPERIMENT", MASSACHUSETTS INSTITUTE OF TECHNOLOGY, LINCOLN LABORATORIES, LEXINGTON, MASSACHUSETTS. FOR A RELATED PROJECT SEE ERIS PROJECT NO. 00001434 (VOL. 4, NO. 1).

REPORTS AND PUBLICATIONS
THE 25-KILOWATT, PHOTOVOLTAIC-POWERED AGRICULTURAL EXPERIMENT

AT HEAD, NE / R. W. MATLIN, W. R. ROMAINE, AND P. E. FISCHBACH
REPORT NO. C00/4094-4 / APRIL 1978
IRRIGATION SYSTEMS FOR THE SOLAR-PHOTOVOLTAIC ENERGY PROGRAM /
W. TWERSKY AND P. E. FISCHBACH / REPORT NO. C00-4094-21 /
NOVEMBER 1978
MANAGEMENT OF SOLAR CELL POWER FOR IRRIGATION / N. W. SULLIVAN,
T. L. THOMPSON, P. E. FISCHBACH, R. F. HOPKINSON / ASAE PAPER
NO. SW332 / DECEMBER 1978

PUBLICATIONS ADDRESS
MASSACHUSETTS INST. OF TECH., LINCOLN LAB., LEXINGTON, MA 0217
UNIVERSITY OF NEBRASKA, LINCOLN, NE 68583

00001660

PROJECT TITLE
PASSIVE SOLAR HEATING OF BUILDINGS WITH ATTACHED GREENHOUSE

SOURCE NUMBER
202-4545

INVESTIGATOR(S)
R. W. JONES

RESEARCH INSTITUTION
UNIV. OF SOUTH DAKOTA
DEPT. OF EARTH SCIENCE/PHYSICS
VERMILLION, SD 57069

PRIMARY SPONSOR
U. S. DEPT. OF ENERGY
DIV. OF TECH. ASSESSMENTS
WASHINGTON, DC

PRIMARY FUNDING AMOUNT
NOT AVAILABLE

TIME FRAME
AUGUST 1979 TO AUGUST 1980

LOCATION
SD

ABSTRACT

RESEARCH IS BEING CONDUCTED ON THE ATTACHED-GREENHOUSE TYPE OF PASSIVE SOLAR HEATING SYSTEM IN THE NORTH-CENTRAL REGION. THE THERMAL PERFORMANCE OF ATTACHED-GREENHOUSE BUILDINGS WILL BE ANALYZED IN ORDER TO DETERMINE THE COMPONENT SIZES AND CONFIGURATIONS WHICH OPTIMIZE PERFORMANCE. THE ANALYTICAL METHOD WILL BE DYNAMIC COMPUTER SIMULATION USING A THERMAL NETWORK MODEL AND ACTUAL HOURLY METEOROLOGICAL AND SOLAR RADIATION DATA FROM THE NORTH-CENTRAL REGION. PROGRESS HAS CONSISTED OF THE DEVELOPMENT OF THE ANALYTICAL MODELS, COMPUTER SIMULATION PROGRAMS AND WEATHER DATA FILES TO BE USED IN THE ANALYSIS. THIS WORK IS NEARING COMPLETION, AND INVESTIGATIONS OF BUILDING PERFORMANCE WILL BEGIN IN THE SECOND QUARTER. THE OVERALL AIM OF THE PROJECT IS THE DEVELOPMENT OF SPECIFIC DESIGN GUIDELINES USEFUL TO ARCHITECTS AND BUILDERS.

00001661

PROJECT TITLE
THE MONITORING OF THERMAL STRATIFICATION OF THE STORAGE TANK OF THE MABLE LEE HALL SOLAR HOT WATER SYSTEM

SOURCE NUMBER
DOE DE-AC02-79CS30247

INVESTIGATOR(S)
EDWARD E. ANDERSON

RESEARCH INSTITUTION
UNIV. OF NEBRASKA
DEPT. OF ENG. AND TECH.
W181 NEBRASKA HALL, UNL
LINCOLN, NE 68588

PRIMARY SPONSOR
U. S. DEPT. OF ENERGY
ARGONNE NATIONAL LABORATORIES
ARGONNE, IL

PRIMARY FUNDING AMOUNT
$25,000

TIME FRAME
SEPT. 1, 1979 TO SEPT. 30, 1980

LOCATION
NE - LANCASTER CO., LINCOLN

ABSTRACT

THE OBJECTIVE OF THIS PROGRAM IS TO OBTAIN THERMAL STRATIFICATION DYNAMICS DATA FOR LARGE LIQUID STORAGE TANKS USED WITH SOLAR SYSTEMS. THIS DATA WILL BE USED BY ANL TO VERIFY NUMERICAL MODELS OF SOLAR STORAGE STRATIFICATION. FOURTEEN TESTS INVOLVING VARIOUS COMBINATIONS OF STORAGE CHARGING AND DISCHARGING ARE BEING CONDUCTED ON THE 30,000 GALLON STORAGE TANK OF THE MABEL LEE HALL HOT WATER HEATING SOLAR SYSTEM LOCATED AT THE UNIVERSITY OF NEBRASKA-LINCOLN. EACH TEST CONTINUALLY MONITORS THE ENERGY INPUTS AND OUTPUTS, GROUND TEMPERATURE AND 35 INTERNAL TEMPERATURES OVER A TWO-DAY PERIOD.

3.4 WIND ENERGY

00001662

PROJECT TITLE
NITROGEN FIXATION WITH WIND ENERGY - AMMONIA PRODUCTION PHASE
SOURCE NUMBER
10872228
INVESTIGATOR(S)
DR. RICHARD E. GILBERT
RESEARCH INSTITUTION
UNIV. OF NEBRASKA
DEPT. OF CHEMICAL ENG.
LINCOLN, NE 68588
PRIMARY SPONSOR
OLD WEST REGIONAL COMMISSION
228 HEDDEN-EMPIRE BLDG.
BILLINGS, MT 59101
PRIMARY FUNDING AMOUNT
$44,418
TIME FRAME
JUNE 1, 1978 TO AUGUST 31, 1980
LOCATION
NE
ABSTRACT

IT IS ESTIMATED THAT PRODUCTION OF NITROGEN FERTILIZER CONSUMES ABOUT 18% OF THE ENERGY USED IN AGRICULTURE IN THE UNITED STATES. IT HAS BEEN PROPOSED TO DEVELOP A SYSTEM CONSISTING OF A LARGE WIND MACHINE, AN ELECTRICAL GENERATOR, AN AIR COMPRESSOR, AN ELECTROLYSIS UNIT, A REACTOR FOR PRODUCING AMMONIA, AND A CONTROL SYSTEM.

THE OBJECTIVES OF THIS PROJECT ARE: 1) TO REVIEW EXISTING TECHNOLOGY FOR CONVERTING NITROGEN AND HYDROGEN TO AMMONIA: 2) TO DETERMINE THE METHOD(S) MOST PROMISING FOR SMALL SCALE AMMONIA PRODUCTION: AND, 3) TO DESIGN AND CONSTRUCT AN EFFICIENT MODEL AMMONIA CONVERSION UNIT CAPABLE OF INTEGRATION WITH A WIND ENERGY SUPPORT SYSTEM.

4.0 URANIUM/NUCLEAR ENERGY

00001663

PROJECT TITLE
REMOTE SENSING FOR URANIUM EXPLORATION
SOURCE NUMBER
9790-01706
INVESTIGATOR(S)
G. L. RAINES
RESEARCH INSTITUTION
U. S. GEOLOGICAL SURVEY. GEOLOGIC DIV.
BOX 25046 MS939
DENVER, CO 80225
PRIMARY SPONSOR
U. S. GEOLOGICAL SURVEY. GEOLOGIC DIV.
12201 SUNRISE VALLEY DRIVE
RESTON, VA 22092
PRIMARY FUNDING AMOUNT
1979: $62.558
TIME FRAME
OCTOBER 1977 TO CONTINUING
LOCATION
WY - UT - NM - CO
ABSTRACT

THE PRIMARY OBJECTIVES FOR THIS YEAR ARE (1) TO EXTEND THE TYPES OF ANALYSES PERFORMED IN THE SOUTHERN POWDER RIVER BASIN TO THE REST OF THE BASIN AND, HOPEFULLY, TO DEFINE NEW AREAS WITHIN THE AREA WITH URANIUM POTENTIAL. (2) TO FURTHER REFINE THE ANALYSIS OF THE AIRCRAFT DATA AS A URANIUM ALTERATION MAPPING TOOL. (3) TO COMPLETE THE ANALYSIS OF THE ENHANCED IMAGES OF THE SOUTHERN TWO-THIRDS OF UTAH IN PREPARATION FOR THE PATTERN RECOGNITION STUDY, AND (4) TO START PROCESSING LANDSAT DATA FOR AN ANALYSIS OF THE SAN JUAN BASIN.

00001664

PROJECT TITLE
RECONNAISSANCE INVENTORY OF ENVIRONMENTAL IMPACTS OF URANIUM MINING IN THE SOUTHERN BLACK HILLS
SOURCE NUMBER
2531
INVESTIGATOR(S)
DR. PERRY RAHN
RESEARCH INSTITUTION
SOUTH DAKOTA SCHOOL OF MINES & TECH.
500 E. ST. JOSEPH STREET
RAPID CITY, SD 57701
PRIMARY SPONSOR
U. S. FOREST SERVICE
PRIMARY FUNDING AMOUNT
$24.956
TIME FRAME
AUGUST 20, 1980 TO DEC. 31, 1981
LOCATION
SD - PENNINGTON CO., FALL RIVER CO., CUSTER CO.
ABSTRACT

A STUDY TO DETERMINE THE LOCATION AND VOLUME OF ALL KNOWN URANIUM SPOILS IN THE SOUTHERN BLACK HILLS AND TO ASSESS THE PRESENT AND FUTURE ENVIRONMENTAL IMPACTS ASSOCIATED WITH THESE SPOILS.

PUBLICATIONS ADDRESS
DR. PERRY RAHN, SOUTH DAKOTA SCHOOL OF MINES & TECH.
DEPT. OF GEOLOGY AND GEOL. ENG.
RAPID CITY, SD 57701

00001665

PROJECT TITLE
IN-SITU URANIUM MINING
SOURCE NUMBER
MINERALS 509-76
INVESTIGATOR(S)
R. MARTINKA
RESEARCH INSTITUTION
MONTANA DEPT. OF FISH AND GAME
HELENA, MT
PRIMARY SPONSOR
U. S. FISH & WILDLIFE SERV.
FORT COLLINS, CO
PRIMARY FUNDING AMOUNT
NOT AVAILABLE
TIME FRAME
SEPTEMBER 1978 TO OCTOBER 1980
LOCATION
MT - CARTER CO., CUSTER NATIONAL FOREST
ABSTRACT

VARIOUS ENERGY COMPANIES ARE PLANNING TO TEST THE FEASIBILITY OF URANIUM SOLUTION MINING ON THE LONG PINES AREA OF EASTERN MONTANA. THIS STUDY WILL MONITOR THE ECOSYSTEM EFFECTS OF SOLUTION MINING TECHNIQUES AND WILDLIFE POPULATIONS, AND DEVELOP GUIDELINES FOR REDUCING THESE CONFLICTS. STUDIES WILL BE CONDUCTED TO FURNISH THE BASELINE DATA NEEDED TO MONITOR THE EFFECTS OF SOLUTION MINING. LONG PINES WILL BE USED AS A MODEL DEMONSTRATION SITE FOR RESEARCHING THE COMPATIBILITY OF WILDLIFE, VEGETATION AND SOLUTION MINING. THE PROJECT WILL ALSO REVIEW MONTANA'S ENVIRONMENTAL PROTECTION STATUTES IN TERMS OF PROTECTION TO THE ENVIRONMENT. THIS IS A CONTINUATION OF EFIS PROJECT NO. 00001068 (VOL. 2, NO. 3).

00001667

PROJECT TITLE

ASSESSMENT OF LEACHATE MOVEMENT FROM URANIUM MILL TAILINGS

INVESTIGATOR(S)

GLENDON W. GEE / R. W. NELSON / R. J. SERNE / D. R. SHERWOOD

RESEARCH INSTITUTION

PACIFIC NORTHWEST LABORATORIES
P. O. BOX 999
RICHLAND, WA 99352

PRIMARY SPONSOR

U. S. NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REGULATORY RESEARCH
MAIL STOP 1130-SS
WASHINGTON, DC 20555

PRIMARY FUNDING AMOUNT

$992,000

TIME FRAME

SEPTEMBER 1978 TO SEPTEMBER 1982

LOCATION

WY - CONVERSE CO., MORTON RANCH URANIUM MILL

ABSTRACT

LABORATORY TESTS WERE CONDUCTED TO DETERMINE HOW LEACHATE FROM URANIUM MILL TAILINGS INTERACTS WITH GEOLOGIC MATERIALS TAKEN FROM THE MORTON RANCH URANIUM MILL SITE IN CENTRAL WYOMING. ACID LEACH TAILINGS AND TAILINGS SOLUTION FROM THE NEARBY EXXON HIGHLAND MILL, AND GEOLOGIC MATERIALS TYPICAL OF THOSE FOUND IN THE AREA OF THE PROPOSED MORTON RANCH TAILINGS PITS, WERE PHYSICALLY AND CHEMICALLY CHARACTERIZED. AN INVESTIGATION WAS MADE OF THE SORPTION CHARACTERISTICS OF HEAVY METALS AND RADIONUCLIDES ON THE MORTON RANCH GEOLOGIC MATERIALS UNDER LOW AND NEUTRAL PH CONDITIONS. TESTS OF CLAY LINER STABILITY WERE DESIGNED TO EVALUATE THE MECHANISMS BY WHICH A CLAY LINER IS ALTERED UNDER ACID ATTACK, AND TO ASSESS ANY LONG-TERM CHANGES IN THE PERMEABILITY OF THE CLAY LINER MATERIALS.

UNDER LOW PH CONDITIONS, MOST OF THE RADIONUCLIDES AND HEAVY METALS CONCENTRATED IN THE TAILINGS SOLUTION WERE FOUND TO BE SOLUBLE, HENCE, POTENTIAL GROUNDWATER CONTAMINANTS. WHEN TAILINGS SOLUTION WAS NEUTRALIZED EITHER BY ADDITION OF NAOH OR BY CONTACT WITH THE MORTON RANCH CLAY LINER OR OVERBURDEN MATERIAL, THE CONCENTRATION OF MOST OF THE NONRADIOACTIVE AND ALL OF THE RADIOACTIVE CONSTITUENTS DROPPED TO OR BELOW THEIR MAXIMUM PERMISSIBLE CONCENTRATIONS (MPC). THE MINERALOGY OF THE CLAY LINER MATERIAL CHANGED ONLY SLIGHTLY AFTER EXTENDED CONTACT WITH THE ACID TAILINGS SOLUTION. ALSO, THE PERMEABILITY OF THE CLAY LINER MATERIAL DECREASED WITH TIME. MEASURED PERMEABILITIES RANGED FROM 2.3 X 10-9 CM/S TO 2.8 X 10-11 CM/S.

REPORTS AND PUBLICATIONS

G. W. GEE, A. C. CAMPBELL, D. R. SHERWOOD, R. G. STRICKERT, AND S. J. PHILLIPS / 1980 / INTERACTION OF URANIUM MILL TAILINGS LEACHATE WITH SOILS AND CLAY LINERS: LABORATORY ANALYSIS / PROGRESS REPORT NUREG/CR-1494 / WASHINGTON, DC

R. W. NELSON, A. E. REISENAUER, G. W. GEE / 1980 / MODEL ASSESSMENT OF ALTERNATIVES FOR REDUCING SEEPAGE OF CONTAMINANTS FROM BURIED URANIUM MILL TAILINGS AT THE MORTON RANCH SITE IN CENTRAL WYOMING / NUREG/CR-1495 / WASHINGTON, DC

R. W. NELSON, A. E. REISENAUER, G. W. GEE / 1980 / MODEL ASSESSMENT OF CONTAMINANT SEEPAGE FROM BURIED URANIUM MILL TAILINGS / PNL-SA-8457 / PACIFIC NORTHWEST LABORATORY, RICHLAND, WA / FIRS INTERNATIONAL CONFERENCE ON MILL TAILINGS MGT., VANCOUVER, BC / MAY 1980 PRESENTATION

PUBLICATIONS ADDRESS

NUREG DOCUMENTS FROM NTIS, SPRINGFIELD, VIRGINIA
PNL DOCUMENT AVAILABLE FROM S. I. EDMUNDS, WATER & LAND LIBRARY
BATTELLE NORTHWEST LABS, P. O. BOX 999, RICHLAND, WA 99352

5.0 ENERGY CONSERVATION/CONSUMER ASPECTS

00001666

PROJECT TITLE
MULTI-STATE CONSORTIUM PROPOSAL ON ENERGY EDUCATION

SOURCE NUMBER
VTP-3745

INVESTIGATOR(S)
L. SELLAND

RESEARCH INSTITUTION
STATE OF IDAHO
BOARD OF VOC. EDUCATION
650 W. STATE STREET
BOISE, ID 83720

PRIMARY SPONSOR
IDAHO STATE GOVERNMENT
BOISE, ID 83701

PRIMARY FUNDING AMOUNT
1979: $2,500

TIME FRAME
APRIL 1979 TO JUNE 1979

LOCATION
AK - ID - MT - OR - UT - WA - WY

ABSTRACT

A MULTI-STATE CONSORTIUM WILL BE ORGANIZED WITH REPRESENTATIVES FROM ALASKA, IDAHO, MONTANA, OREGON, UTAH, WYOMING, AND WASHINGTON TO DEVELOP A PROPOSAL THAT WILL GENERATE FUNDS AND SUPPORT TO CONTINUE ENERGY EDUCATION AND EXPAND TO PROVIDE ASSISTANCE TO PEOPLE PREPARING FOR CAREERS IN ENERGY EDUCATION. A MEETING WILL BE HELD IN PORTLAND, OREGON, TO ORGANIZE THE CONSORTIUM, ENGAGE A CONSULTANT TO ASSIST IN WRITING THE PROPOSAL, AND DEVELOP ALL PRELIMINARY DRAFTS OF THE PROPOSAL. THE CONSULTANT WILL COMPLETE THE FINAL DRAFT, WHICH WILL BE SUBMITTED TO U. S. GOVERNMENT AGENCIES FOR FUNDING OF ENERGY RELATED ACTIVITIES IN THE CONSORTIUM STATES.

00001668

PROJECT TITLE
STUDY ON NEBRASKA USE OF LIQUID FUELS

SOURCE NUMBER
10072117

INVESTIGATOR(S)
WILLIAM H. PALMER

RESEARCH INSTITUTION
NEBRASKA ENERGY OFFICE
BOX 95085
LINCOLN, NE 68509

PRIMARY SPONSOR
OLD WEST REGIONAL COMMISSION
228 HEDDEN-EMPIRE BLDG.
BILLINGS, MT 59101

PRIMARY FUNDING AMOUNT
$25,000

TIME FRAME
DEC. 20, 1979 TO DEC. 31, 1980

LOCATION
NE

ABSTRACT

THE UNCERTAINTY OF OIL SUPPLIES FOR EARLY 1980, THE LIMITS ON IMPORTED OIL RECENTLY IMPOSED BY PRESIDENT CARTER, AND THE CONSTANTLY GROWING DEMAND FOR PETROLEUM PRODUCTS ARE REASONS TO ANTICIPATE ACUTE SHORTAGES IN THE VERY NEAR FUTURE. STATE GOVERNMENT MUST BE FAMILIAR WITH THE MOST VULNERABLE AREAS IN FUTURE SHORTAGES IN ORDER TO BE PREPARED TO RENDER EMERGENCY ASSISTANCE. THERE ARE THREE AREAS WHERE PETROLEUM PRODUCT SHORTAGES CAN BECOME CRITICAL: MOTOR GASOLINE, HOME HEATING OILS, AND DIESEL FUELS, WHICH ARE USED HEAVILY IN PRODUCTION AGRICULTURE. INFORMATION IS LACKING AS TO PRECISE LOCATIONS, ACTUAL PURPOSES AND THE QUANTITY OF THE LIQUID FUELS NEEDED FOR SEASONAL OPERATIONS. SHORTAGES OF THESE IMPORTANT FUELS REQUIRE DETAILED INFORMATION WHICH PRESENTLY IS UNAVAILABLE TO THE NEBRASKA ENERGY OFFICE. THIS PROGRAM'S OBJECTIVES ARE TWOFOLD, ENTAILING: 1) GATHERING ACCURATE CURRENT INFORMATION ON THE QUANTITIES OF DIESEL OILS, FUEL HEATING OILS, LIQUIFIED PETROLEUM GAS, AND GASOLINE USED IN THE AGRICULTURAL AND RESIDENTIAL SECTIONS OF THE NEBRASKA ECONOMY; AND 2) DETERMINING MORE ACCURATELY THE STATE'S MONTHLY SUPPLY OF THESE FUELS.

00001669

PROJECT TITLE
A PILOT STUDY TO DEVELOP AN ADMINISTRATIVE MODEL FOR A VIABLE FUEL ALLOCATION OFFICE

SOURCE NUMBER
10075028

INVESTIGATOR(S)
PAMELA A. ABEL

RESEARCH INSTITUTION
STATE OF WYOMING
ENERGY CONSERVATION OFFICE
CHEYENNE, WY 82002

PRIMARY SPONSOR
OLD WEST REGIONAL COMMISSION
228 HEDDEN-EMPIRE BLDG.
BILLINGS, MT 59101

PRIMARY FUNDING AMOUNT
$25,000

TIME FRAME
NOV. 1, 1979 TO OCT. 31, 1980

LOCATION
WY
ABSTRACT

THE ARAB EMBARGO OF 1973 CREATED THE NEED FOR A FUEL ALLOCATION OFFICE AND THE MOTOR GASOLINE AND MIDDLE DISTILLATES SHORTAGE THAT OCCURRED IN THE SPRING OF 1979 FURTHER EMPHASIZED THIS NEED. AT THIS TIME, THE STATE HAS NO DIRECTION OR MODEL TO ESTABLISH EFFECTIVE MEANS TO DEAL WITH THE NUMEROUS CHANGES IN FEDERAL REGULATIONS, MANDATES AND STATE REGULATION CHANGES RELATIVE TO THE FUEL ALLOCATION SET ASIDE PROGRAM.

THE SPECIFIC OBJECTIVE OF THE PROJECT IS FOR THE WYOMING STATE ENERGY OFFICE TO DEVELOP A SUITABLE ADMINISTRATIVE MODEL FOR FUEL ALLOCATION AND SET ASIDE THAT WILL MEET THE NEEDS OF WYOMING STATE GOVERNMENT.

THE SPECIFIC TASKS ARE: 1) DEVELOPMENT OF AN ADMINISTRATIVE PROCESS FOR A MODEL STATE ENERGY OFFICE BY CREATING A SET OF COMMUNICATION AND COORDINATION PROCEDURES; 2) TO DEVELOP AND PILOT A REPORTING SYSTEM THAT WILL EFFECTIVELY KEEP THE GOVERNOR PERSONALLY AWARE OF THE ENERGY NEEDS AND ISSUES RELATING TO THE STATE; AND 3) TO DEVELOP A PROCESS WHERE ALL PERTINENT FEDERAL REGULATIONS CONCERNING FUEL ALLOCATION ARE REVIEWED ON A TIMELY BASIS.

00001670

PROJECT TITLE
TECHNOLOGY ASSESSMENT OF WESTERN ENERGY RESOURCE DEVELOPMENT
SOURCE NUMBER
68-01-1916, V624C-001
INVESTIGATOR(S)
M. DEVINE
RESEARCH INSTITUTION
UNIV. OF OKLAHOMA
DEPT. OF POLITICAL SCIENCE
660 PARRINGTON OVAL, ROOM 101
NORMAN, OK 73069
PRIMARY SPONSOR
U. S. EPA
OFFICE OF ENERGY MINERALS & INDUSTRY
401 M STREET S.W.
WASHINGTON, DC 20460
PRIMARY FUNDING AMOUNT
1980: $22,000
TIME FRAME
JULY 1975 TO JUNE 1980
LOCATION
AZ - CO - MT - ND - NM - UT - SD - WY
ABSTRACT

THIS IS A TECHNOLOGY ASSESSMENT OF LARGE SCALE ENERGY DEVELOPMENT IN 8 WESTERN STATES - NORTH AND SOUTH DAKOTA, MONTANA, WYOMING, COLORADO, UTAH, NEW MEXICO, AND ARIZONA. SIX ENERGY RESOURCES - COAL, OIL SHALE, GEOTHERMAL, URANIUM, OIL AND NATURAL GAS - ARE INVESTIGATED, AND THE ENTIRE FUEL CYCLE FROM EXTRACTION TO TRANSPORTATION OF A FUEL (OR TRANSMISSION OF ELECTRICITY) IS CONSIDERED. THE OBJECTIVE OF THE STUDY IS TO DETERMINE THE IMPACTS OF ENERGY DEVELOPMENT ON THE PHYSICAL ENVIRONMENT AND ON SOCIETY, TO IDENTIFY MAJOR ISSUES ASSOCIATED WITH THESE IMPACTS, AND TO ANALYZE POLICY ALTERNATIVES FOR RESOLVING THE MOST CRITICAL ISSUES.

FINAL OUTPUT OF THE STUDY IS A SERIES OF REPORTS DESCRIBING THE RESULTS OF THE IMPACT ASSESSMENT AND POLICY ANALYSIS, AND A SERIES OF BRIEFINGS ON KEY RESULTS OF THE STUDY WILL BE PRODUCED.

KEY RESULT OF THE STUDY IS THE DEMONSTRATION THAT ALTERNATIVE TECHNOLOGY CHOICES, DESIGN APPROACHES, AND SITING DECISIONS PLAY A CRITICAL ROLE IN DETERMINING THE PHYSICAL AND SOCIETAL OUTCOMES OF ENERGY DEVELOPMENT IN THE WEST. THE FINAL REPORT ILLUSTRATES THE KINDS OF CHOICES OPEN TO POLICYMAKERS TO CONTROL THESE FACTORS IN ORDER TO MINIMIZE THE ADVERSE IMPACTS OF DEVELOPMENT. FINAL REPORTS OF THE BASIC STUDY WERE COMPLETED AUGUST 1979. PRESENTATION OF RESULTS TO POLICYMAKERS ARE CONTINUING. A FOLLOW-ON REPORT EXAMINING POLICY ISSUES RELATING TO WATER AND ENERGY DEVELOPMENT IS BEING COMPLETED.

00001671

PROJECT TITLE
RESOURCE EVALUATION FOR INDIAN RESERVATIONS IN SOUTH DAKOTA
SOURCE NUMBER
2529
INVESTIGATOR(S)
DR. FREDRICK J. RICH / DR. JIM MARTIN
RESEARCH INSTITUTION
SOUTH DAKOTA SCHOOL OF MINES AND TECH.
500 E. ST. JOSEPH STREET
RAPID CITY, SD 57701
PRIMARY SPONSOR
UNITED SIOUX TRIBE
PRIMARY FUNDING AMOUNT
$27,539
TIME FRAME
SEPT. 1, 1980 TO DEC. 31, 1980
LOCATION
SD
ABSTRACT

MINERAL DEPOSITS (EXCLUSIVE OF PETROLEUM AND WATER) WILL BE IDENTIFIED AND DESCRIBED, AS PER INFORMATION AVAILABLE TO US IN U.S.G.S., BUREAU OF MINES, STATE GEOLOGICAL SURVEY PUBLICATIONS ETC. STUDENTS AND DRS. RICH AND MARTIN WILL REWRITE RESOURCE DESCRIPTIONS FOR EACH RESERVATION SUCH THAT LAYMEN WILL BE ABLE TO UNDERSTAND THE REPORTS.

PUBLICATIONS ADDRESS
DR. FREDRICK J. RICH / SOUTH DAKOTA SCHOOL OF MINES & TECH. / DEPT. OF GEOLOGY AND GEOL. ENG. / 500 E. ST. JOSEPH STREET / RAPID CITY, SD 57701

00001672

PROJECT TITLE
ECONOMIC IMPACTS OF ENERGY DEVELOPMENT AND USE ON AGRICULTURAL AND NATURAL RESOURCES
SOURCE NUMBER
NRE43-309-38-01
INVESTIGATOR(S)
W. MCMARTIN
RESEARCH INSTITUTION
NORTH DAKOTA STATE UNIV.
FARGO, ND 58103
PRIMARY SPONSOR
U. S. DEPT. OF AGRICULTURE
WASHINGTON, DC

SECONDARY SPONSOR
NORTH DAKOTA STATE UNIV.
FARGO, ND 58103
PRIMARY FUNDING AMOUNT
NOT AVAILABLE
TIME FRAME
OCTOBER 1978 TO SEPTEMBER 1985
LOCATION
ND
ABSTRACT

THIS STUDY WILL ANALYZE SUPPLY AND DEMAND FACTORS THAT WILL INFLUENCE THE POTENTIAL FOR FUEL WOOD AND HOME HEATING: ANALYZE THE ECONOMIC FEASIBILITY OF ENERGY (BIOMASS) CROPS, INCLUDING LAND AND WATER REQUIREMENTS, IMPACTS ON TRADITIONAL CROP PRODUCTION AND ENVIRONMENTAL IMPLICATIONS: AND ASSESS THE ECONOMIC IMPLICATIONS OF ALTERNATIVE COAL AND OIL SHALE DEVELOPMENT AND ASSOCIATED ACTIVITIES ON ENVIRONMENTAL QUALITY AND THE COMPETITION FOR RESOURCES IN RURAL AREAS. RESEARCH WILL ASSESS THE ECONOMIC RESOURCE USE AND ENVIRONMENTAL IMPLICATIONS OF PUBLIC PROGRAMS TO ENCOURAGE ENERGY FARMS; DEVELOP REGIONAL REPORTS ON CURRENT LAND AND WATER USE, THE ECONOMIC IMPLICATIONS FOR FUTURE RESOURCE USE, RESOURCE COMPETITION, AND ENVIRONMENTAL QUALITY RESULTING FROM ALTERNATIVE LEVELS OF COAL AND OIL SHALE DEVELOPMENT, AND RELATED ACTIVITIES: AND DEVELOP AN INTERREGIONAL LINEAR PROGRAM TO EVALUATE CONFLICTING RECLAMATION BUDGETS FROM AVAILABLE LITERATURE, COOPERATION WITH OTHER AGENCIES WITHIN AND WITHOUT USDA, AND LIMITED EMPIRICAL STUDIES. BUDGETING TECHNIQUES AND LINEAR PROGRAMMING WILL BE USED TO ESTIMATE WATER DEMAND FOR ENERGY DEVELOPMENT AND TO APPRAISE THE ECONOMIC AND ENVIRONMENTAL IMPLICATIONS OF ALTERNATIVE WATER SUPPLIES.

LOCATION-STATE INDEX

THE LOCATION-STATE INDEX CONTAINS STATE NAMES, UTILIZING THE STANDARD TWO-DIGIT ABBREVIATIONS.

OTHER LOCATION NAMES SUCH AS COUNTIES, RIVER BASINS AND GEOGRAPHIC FORMATIONS CAN BE FOUND IN THE SUBJECT INDEX.

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                      00001669  00001670
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*GX - NATIONWIDE APPLICABILITY

PERSONAL NAME INDEX

THE PERSONAL NAME INDEX CONTAINS THE NAMES OF THE INVESTIGATORS, SUPERVISORS, PROJECT MONITORS AND OFFICERS, AND AUTHORS OF PUBLICATIONS FOR EACH PROJECT.

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VAN HAVERSEN, B. 00001608
VAN VOAST, W. 00001610
VANDER MOLEN, R. H. 00001581
VANMETER, W. 00001541
VYHNALEK, A. 00001658
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WILLSON, W. G. 00001640

WINCENTSEN, H. B. 00001584

WOESSNER, W. W. 00001598

WOODS, P. F. 00001606

WYCHE, M. C. 00001632

ZELVER, N. 00001642

ORGANIZATION INDEX

THE ORGANIZATION INDEX CONTAINS UNIFORM NAMES OF ALL ORGANIZATIONS INCLUDED IN THE PROJECT DESCRIPTIONS. GOVERNMENT AGENCIES LISTED IN THIS INDEX ARE PREFACED BY THE ORGANIZATION'S AFFILIATION; FOR EXAMPLE, SOUTH DAKOTA OFFICE OF ENERGY POLICY, AND U.S. BUREAU OF LAND MANAGEMENT.

ORGANIZATION INDEX

ARCO COAL CO.
00001617 00001620
BASIN ELECTRIC POWER COOPERATIVE
00001644
BILLINGS-YELLOWSTONE CITY-CO. PLANNING BOARD
00001632
BOYCE CONSULTING
00001620
BROWNE, BORTZ & CODDINGTON
00001632
BUFFALO-JOHNSON CO. PLANNING OFFICE
00001628
CARTER MINING CO.
00001595
COLLEGE OF WOOSTER, DEPT. OF BIOLOGY
00001619
COLORADO ENERGY IMPACTS OFFICE
00001627
COLORADO STATE UNIV., DEPT. OF FOREST & WOOD SCIENCES
00001589
COMBUSTION POWER CO., INC.
00001581
DAWN ENTERPRISES, INC.
00001646
ELECTRIC POWER RESEARCH INSTITUTE
00001599
ENSCO, INC.
00001654
FORD FOUNDATION
00001645
GARY OPERATING CO.
00001585
HAAKON SCHOOL DISTRICT
00001657
HISTORICAL RESEARCH ASSOCIATES
00001630
IDAHO STATE GOVERNMENT
00001666
MASSACHUSETTS INSTITUTE OF TECH., LINCOLN LAB.
00001659
MONTANA BUREAU OF MINES & GEOLOGY
00001584 00001610
MONTANA COAL BOARD
00001632
MONTANA COLLEGE OF MINERAL SCI. AND TECH.
00001575
MONTANA DEPT. OF FISH AND GAME
00001665
MONTANA DEPT. OF NATURAL RESOURCES & CONSERVATION
00001645
MONTANA ENERGY & MHD RESEARCH & DEVELOPMENT INST.
00001643

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MONTANA MINING AND MINERAL RES. INST.
00001575
MONTANA OFFICE OF THE GOVERNOR
00001638
MONTANA STATE UNIV., AG. EXP. STATION
00001583
MONTANA STATE UNIV., COLLEGE OF ENG.
00001577
MONTANA STATE UNIV., DEPT. OF CHEMISTRY
00001596
MONTANA STATE UNIV., DEPT. OF CIVIL ENG. & ENG. MECHANICS
00001642
MONTANA STATE UNIV., DEPT. OF MICROBIOLOGY
00001602
MONTANA STATE UNIV., RECLAMATION RESEARCH UNIT
00001593
NATIONAL SCIENCE FOUNDATION
00001627 00001652
NEBRASKA ENERGY OFFICE
00001668
NEBRASKA STATE DEPT. OF VOC. EDUCATION
00001658
NEBRASKA STATE ENERGY OFFICE
00001658
NEW MEXICO STATE UNIV., DEPT. OF PHYSICS & EARTH SCIENCES
00001653
NORTH CENTRAL CONSULTANTS, LTD.
00001646
NORTH DAKOTA DEPT. OF GAME AND FISH
00001621 00001622 00001623 00001624 00001625 00001626
NORTH DAKOTA GEOLOGICAL SURVEY
00001603
NORTH DAKOTA STATE NATURAL RESOURCES COUNCIL
00001656
NORTH DAKOTA STATE UNIV.
00001622 00001672
NORTH DAKOTA STATE UNIV., DEPT. OF AG. ENG.
00001650
NORTH DAKOTA STATE UNIV., DEPT. OF CHEMISTRY
00001600
NORTH DAKOTA STATE UNIV., STATE WATER RESOURCES INST.
00001597
NORTHERN CHEYENNE TRIBE
00001598
NORTHERN ENERGY RESOURCES CO.
00001593
OCCIDENTAL COLLEGE, DEPT. OF BIOLOGY
00001618
OLD WEST REGIONAL COMMISSION
00001576 00001633 00001634 00001635 00001638 00001644 00001662 00001659 00001669
PACIFIC NORTHWEST LABORATORIES
00001667

RALPH KATZEN ASSOCIATES
00001646
SCOTTSBLUFF-GERING PAYROLL DEV. FOUNDATION. INC.
00001649
SHAH & ASSOCIATES INC.
00001639
SHELL FOUNDATION
00001627
SOUTH DAKOTA SCHOOL OF MINES & TECH.
00001664 00001671
SOUTH DAKOTA STATE UNIV., DEPT. OF MICROBIOLOGY
00001651
SOUTH DAKOTA STATE UNIV., WATER RESOURCES INST.
00001615
STATE OF IDAHO. BOARD OF VOC. EDUCATION
00001666
STATE OF NEBRASKA, AG. PRODUCTS IND. UTILIZATION COMMITTEE
00001647
STATE OF WYOMING. ENERGY CONSERVATION OFFICE
00001669
STEARNS-ROGER. INC.
00001640
TOUCHE-ROSS AND CO.
00001646
U. S. BUREAU OF LAND MANAGEMENT
00001604 00001606 00001607 00001608 00001609 00001610 00001611 00001621 00001622 00001623
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U. S. BUREAU OF MINES
00001603
U. S. DEPT. OF AG., FARMERS HOME ADMIN.
00001628
U. S. DEPT. OF AGRICULTURE
00001587 00001588 00001592 00001648 00001572
U. S. DEPT. OF AGRICULTURE. COOP. RESEARCH OFFICE
00001583
U. S. DEPT. OF AGRICULTURE. COOP. STATE RESEARCH SERVICE
00001589
U. S. DEPT. OF AGRICULTURE. NORTH DAKOTA COOP. STATE RES. SERV.
00001650
U. S. DEPT. OF AGRICULTURE. SOUTH DAKOTA COOP. STATE RES. SERV.
00001651
U. S. DEPT. OF ENERGY
00001577 00001616 00001636 00001637 00001649 00001656 00001659
U. S. DEPT. OF ENERGY. ARGONNE NATIONAL LAB.
00001661
U. S. DEPT. OF ENERGY, DIV. OF ENV. CONTROL TECH.
00001639
U. S. DEPT. OF ENERGY, DIV. OF FOSSIL FUEL EXTRACTION
00001585
U. S. DEPT. OF ENERGY. DIV. OF GEOTHERMAL ENERGY
00001657

ORGANIZATION INDEX

U. S. DEPT. OF ENERGY, DIV. OF TECH. ASSESSMENTS
00001660

U. S. DEPT. OF ENERGY, GRAND FORKS ENERGY RESEARCH CENTER
00001581

U. S. DEPT. OF ENERGY, GRAND FORKS ENERGY TECH. CENTER
00001640

U. S. DEPT. OF ENERGY, LARAMIE ENERGY RESEARCH CENTER
00001590 00001612

U. S. DEPT. OF ENERGY, LARAMIE ENERGY TECH. CENTER
00001586 00001601

U. S. DEPT. OF ENERGY, OFFICE OF FOSSIL ENERGY
00001641 00001643

U. S. DEPT. OF ENERGY, OFFICE OF HEALTH AND ENV. RES.
00001591

U. S. DEPT. OF INTERIOR, OFFICE OF WATER RESEARCH & TECH.
00001597 00001600 00001602 00001615

U. S. DEPT. OF JUSTICE, LAW ENFORCEMENT ASSISTANCE ADMIN.
00001631

U. S. DEPT. OF TRANSPORTATION
00001636

U. S. EPA
00001596

U. S. EPA, ENVIRONMENTAL RESEARCH LAB.
00001614

U. S. EPA, INDUSTRIAL ENVIRONMENTAL RESEARCH LAB.
00001612

U. S. EPA, OFFICE OF ENERGY MINERALS & INDUSTRY
00001670

U. S. EPA, OFFICE OF RESEARCH & DEV.
00001598 00001618 00001619

U. S. EPA, OFFICE OF RESEARCH AND DEV.
00001613

U. S. FISH & WILDLIFE SERV.
00001665

U. S. FOREST SERVICE
00001664

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